A Dissertation on

SCREENING FOR GROUP B STREPTOCOCCI IN ANTENATAL WOMEN

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CERTIFICATE

This is to certify that the dissertation with the title , "**SCREENING FOR GROUP B STREPTOCOCCI IN ANTENATAL WOMEN"** is the bonafide original work of **Dr. M. JAYALAKSHMI**, done by her under my guidance in partial fulfillment of the requirements for MD (Obstetrics and Gynaecology) branch II examination of the Tamil nadu Dr. M.G.R. Medical University to be held in April 2013.The period of post graduate study and training was from May 2010 to March 2013.I forward this to the Tamilnadu Dr. M.G.R. Medical University , Chennai, Tamil nadu, India

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DECLARATION

I, **Dr.M.JAYALAKSHMI**, Solemnly declare that the dissertation, titled **"SCREENING FOR GROUP B STREPTOCOCCI IN ANTENATAL WOMEN"** is a bonafide work done by me during the period of JUNE 2012 TO DECEMBER 2012 at Government Stanley Medical College and Hospital, Chennai under the expert supervision of **Professor Dr. V.KALAIVANI, DGO, M.D,** Professor and Head, Department Of Anaesthesiology, Government Stanley Medical College, Chennai.

This thesis is submitted to The Tamil Nadu Dr. M.G.R. Medical University in partial fulfilment of the rules and regulations for the M.D. degree examinations in Anaesthesiology to be held in April 2013.

Chennai-1 **Dr.M.JAYALAKSHMI**

Date:

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CONTENTS

INTRODUCTION

Infections are an important factor to maternal and perinatal morbidity and mortality rates. The relative immunosuppression that occurs during pregnancy may alter the natural course of infectious diseases. Group B streptococci is the commonest cause of early onset neonatal infection (5 – 10%)

1. Although early reports in the 1930's and 1940's linked the GBS with postpartum infections and neonatal meningitis. GBS(Streptococcus agalactiae) has become recognized since the 1980's as one of the most important causes of neonatal infection.

2. 86 trials of empirical and intrapartum antibiotics to women who transmitting infections , demonstrated a protective benefit against neonatal infection in the first week of life. (early onset disease)

3. In the 1990's these efforts relate to the implementation of guidelines for intrapartum antibiotics prophylaxis at the risk of mothers endorsed and issued by the American college of Obstetricians & Gynaecologists (ACOG), the centres for

disease control and prevention (CDC)[12], American academy of paedriatics(AAP).

This practice shows in a significant decrease in the early onset disease. Based on these results updated guidelines were issued by the CDC[12] in 2002 to recommend optimization of screening and treatment of pregnant women.

2002 guidelines[12] :

The recommendations are

- Antenatal women underwent vaginal - rectal screening for Group B streptococci colonization at 35-37 weeks.
- Antibiotic prophylaxis in antenatal women is needed for
    - Women with GBS disease positive infants.
    - Women in the current pregnancy with positive bacteuria.
    - Women with unknown GBS – delivers less than 37 weeks of gestation with an intrapartum fever or membrane rupture for 18 hours .
- Pencillin is the drug of choice with ampicillin as an alternative.

2010 guidelines[12] :

- Detection of GBS by using a pigmented media and PCR assays
- Revised colony count threshold for laboratory's to GBS in the bacteuria.
- Revised algorithms for Group B streptococci screening and use of IAP for threatened preterm delivery,including one algorithm for preterm labour and one for PROM.
- IAP agents are recommended to improve the antibiotic for penicillin-allergic women.
- To Change in the penicillin dose .
- To all newborns, neonatal management algorithm's scope was applied.
- It recommends management that depend upon clinical appearance of the newborn and risk factors ,adequacy of Intrapartum antibiotic Prophylaxis if indicated .
- Alterations made to the algoritm to decrease unwanted evaluations in relatively low risk neonates for early onset Group B streptococci disease.

Group B streptococci was found in veterinary medicine as a reason for bovine mastitis. . Eickhoff and associates detected the role in neonatal infections.

GBS as one of the most important cause for urinary tract infections, amnionitis, post partum endometritis, wound infection & intrapartum, post partum bacteremia also lead to premature rupture of membrane and preterm delivery.

EPIDEMIOLOGY :

Asymptomatic vaginal colonization with GBS approximately 20% (range 4.6% - 40.6%). The risk of transmission from mother to fetus 42% - 72% among neonates born to colonized mothers.

Maternal carriage – 20% (range 10%-30%)

Early onset maternal GBS sepsis – 1.5/1000 live births (0.15%)

Overall neonatal colonization 5% - 20%

Risk factors for early onset neonatal infection with GBS[1]

- Prematurity (<37 weeks gestation)
- Clinical chorioamnionitis, intra-amnionitic infection, maternal fever (>100.4’C)

- Rupture of membranes >12 to 18hours

- Previously delivered infant with invasive GBS disease.

GBS colonization showed variable prevalence during pregnancy[6]. In one study ,antenatal women positive for GBS colonization in 26 to 28 week of gestation , 65 % remained colonized at term ,whereas 8 % with negative Group B streptococci culture were positive for Group B streptococci at term. During birth 50 to 65 % of neonates have positive GBS colonization . Only 1 to 2 percent of neonates developed invasive GBS infection when compared to 98 % of neonates who remained healthy in positive GBS colonization.

[6]In India, many studies shown low colonization and infection rates.

GBS serotypes :

GBS are facultative , gram positive diplococcic also called streptococcus agalactiae belonging to lancefield group B is composed of rhamnose – glucosamine polymer attached to peptidoglycan layer. The type specificity by both capsular polysaccharide and protein antigens.

Based on capsular polysaccharide ,there are 9 antigenically distinct serotypes.Types are Ia, Ib ,II to VIII. The protein antigen is designated by

single letter ‘c’ .GBS produces a variety of potential virulence determinants. These include

- Beta hemolysin
- C5a peptidase
- Lipotechoic acid
- Cell surface protein
- Hyaluronic acid lyase
- Cell surface penicillin binding protein.

[6]One study in USA shown that serotypes Ia ,III and V for 76 – 86 percent of early onset disease in neonates and women.

Serotype III , I a & V is accounted for late onset disease. The most common serotypes in india are serotype III , II and Ib. Important virulent factor is the polysaccharide capsule.

Pathogenesis :

Early onset disease :

- The most important risk factor is the presence of the Group B streptococci in the genitourinary tract at deliveries.

- The organism reach the amniotic fluid from maternal genitourinary tract when rupture of membarane occurs
- Whereas newborn contact occurs during the passage in maternal genitourinary tract .
- When aspiration of amniotic fluid contaminated with GBS colonization occurs it results in lower respiratory tract infection and pulmonary epithelial cell damage leads to pneumonia and respiratory distress .
- If infection occurs in intact amniotic membrane it results in still birth or death within few hours of birth.

Late onset disease:

Horizontal transmission plays a major role.

- Close contact with mother
- Hospital Acquired infection
- Breastfeeding.

Clinical features:

Neonatal morbidity:

- Early onset disease
- late onset disease

Early onset disease

- within the first 7 days of life.
- The initial manifestation is respiratory distress .
- Pneumonia and septicemia are the most common manifestations.
- Its more common in preterm babies.

Late onset disease occur after

- 7 days and upto 3 month of age.
- Meningitis ,Sepsis and Osteoarthritis.
- The signs and symptoms are fever, lethargy, irritability, poor intake of feeding and tachypnoea.
- Respiratory distress is less common.
- About 20 percent GBS meningitis have permanent neurological problem.

They are

- sensorineural hearing loss
- mental retardation
- cortical blindness
- seizures.

[6]Neonatal manifestation	Early onset	Late onset
Onset	First week of life	One week to 3 month of age
Manifestation	Respiratory distress, pneumonia , sepsis	Sepsis , meningitis , osteoarthritis
premature	Increased	No change
Obstetrical Complications	Frequent 70%	Uncommon
Mode of transmission	Vertical	horizontal
Predominant serotypes	Ia ,III , VII	III ,Ia ,V
Mortality percentage	10 – 15 %	2- 6 %

Maternal morbidity :

- Chorioamnionitis
- Endometritis ,
- Urinary Tract infections ,
- Pyelonephritis and
- GBS bacteraemia [7]can occur.
- Prolonged labour
- Premature rupture of membrane[9]
- Preterm delivery [9]
- Fever in post partum patients
- Less commonly associated with wound infection ,
- Pelvic abscess
- Septic pelvic thrombophlebitis[10] and
- Osteomyelitis.

[12]Detection of GBS colonization:

- The time for antenatal cultures from 35 to 37 weeks of gestation.
- GBS colonize in the genitourinary and gastrointestinal tracts
- Sampling time, Body area sampling, media for bacteriological culture are the important factors to detect GBS colonization accurately.
- The lower vagina and anorectal sites yields highest colonization rate when sampled.
- Selective broth medium is Todd – Hewitt broth with gentamycin (8microgram/ml) that decreases the gram negative enteric bacilli growth and other normal flora and results in increased culture sensitivity for GBS to over 90 percent.

In 1996 , the centre for disease control and prevention guidelines recommends two methods of GBS disease prevention.

1. Risk - based approach [12]:

Antibiotics are given on the presence of risk factors in antenatal or intrapartum period.

Risk factors are as follows

- Preterm labour or
- Premature rupture of membrane (greater than 18 hours)or
- Intrapartum fever >100.4 f or
- Previous newborn had GBS disease and
- GBS bacteuria during pregnancy.

2.**Universal swab based screening[12] :**

- Routine vaginal / rectal swab for GBS sceening in women at 35 – 37 weeks of gestation.
- Give intrapartum antibiotics

(a) If the vaginal / rectal swab or urine cultures show the presence of GBS or

(b) If the women has given birth to an infant with invasive GBS disease or

(c) If the GBS culture report is unknown , and a risk factor is present .

In 2002 , a further study on the above two methodologies indicated that regular screening for the infection would decreases 50 % newborn infections.

The CDC revised guidelines August 2002 recommends screening are pregnant women at 35 – 37 week of gestation , with the lower vaginal and rectal swab for GBS culture. Swabbing the lowervagina and anorectal sites increases the yield for GBS when compared with swabing the vagina or swabing the cervix alone .

The latest uptate of 2010 is based on the standardizes the lab methods, changes the dose of antimicrobial prophylaxis and upd ates the recommendations for premature infants and neonates at risk of early infection.

Methods:

Centre for Disease Control (CDC) Guidelines[12]:

Samples are taken by swabbing the skin from vaginal introitus to the anus without using the speculum. Materials are transported using Amies medium.The transported medium are then transferred to suitable selective broth medium like Todd Hewitt broth supplemented with either gentamycin 8 microgram/ml or nalidixic acid 15 microgram / ml . The inoculated selective broth is incubated for 18 – 24 hours at 35 – 37 C in ambient air or with 5 % Co2.Subculturing can be done using sheep blood agar plate. GBS was identified using CAMP (Christie, Atkins& munch-petersen) test. .

[12]Indications for Intrapartum antibiotic prophylaxis:

- Previous newborn with invasive GBS disease.
- GBS bacteriuria during present pregnancy.
- Positive GBS screening laboratory test during present pregnancy.

- Unknown GBS status,because culture not attempted and or results unknown or delivery at less than 37 weeks gestation, PROM >18hours, Intrapartum >100 4 F.

Intrapartum Prophylaxis not indicated

- GBS screening culture positive in previous pregnancy
- Planned Caesarean delivery
- Negative GBS culture

Recommended Regimens

Drug of choice :

Penicillin G 5 million units as intravenously, followed by 2.5 million unit as intravenously every 4 hours until delivery.

Alternative:

Ampicillin 2 g intravenously followed by 1g intravenously every 4 hours until delivery.

If penicillin Allergic patient not at high risk for anaphylaxis :

Cefazolin 2g iv then 1g iv every 8 hours until delivery.

If penicillin Allergic patient at high risk for Anaphylaxis :

- Clindamycin 900mg intravenously every 8 hours until delivery
- or Erythromycin 500mg intravenously every 6 hours until delivery.

GBS resistant to Clindamycin or Erythromycin or Susceptibility unknown: Vancomycin 1g intravenously every 12 hours until delivery.

Clinical challenges

Group B streptococci bacteruria during pregnancy

- The presence of bacteruria in pregnant women is a marker for heavy genital tract infection.
- Group B bacteruria during pregnancy should receive intrapartum prophylaxis.
- Lower Vaginal and anorectal screening at 37- 38 weeks is not necessary .

- Women with such bacteruria or urinary tract infections with group B streptococci should receive treatment as well as intrapartum prophylaxis.

Planned caesarean delivery

Because group B infection can cross the intact amniotic membranes, a caesarean delivery does not prevent mother to child transmission of the infection.

Threatened preterm delivery

Preterm delivery is a risk factor for group B streptococcal infection. Timing of delivery not known, because assess the delivery time is difficult in preterm labour, so intrapartum antibiotic prophylaxis is given in threatened preterm delivery is challenging.

Threatened Preterm Delivery [12]

Onset of labor or rupture of membranes at <37 weeks gestation with significant risk for imminent preterm delivery

- If No GBS Culture- Obtain GBS culture and start intravenous penicillin, if no growth in 48 hours, stop penicillin. If GBS positive, continue penicillin for 48 hours.

- If GBS +VE- GBS Prophylaxis
- If GBS-VE- No GBS Prophylaxis

Side Effects and Consequences of Chemoprophylaxis

Allergic reactions

Anaphylactic reactions

GBS strain resistant to standard therapy.

Increasing emergence of bacterial resistance to antimicrobial agents in hospital and community settings, assessment of the impact and continued effectiveness of interventions based on antimicrobial prophylaxis is critical.

Rapid test for GBS[1]:

- Fluorescence in situ Hybridization
- Latex Agglutination test
- Optical immunoassays and enzyme immunoassays
- DNA probes
- Nucleic acid amplication test

If appropriate techniques for rapid detection of GBS become commercially available, they may be integrated into the currently recommended screening strategy.

Vaccines[15]:

Type specific antibody deficiency in maternal serum are related to disseminated GBS infection in young infants thus immunization of women with GBS type specific polysaccharides results in prevention of infant disease by placental transport of protective antibodies.

Native type Ia, II, III polysaccharides are nontoxic, safe and immunogenic. Vaccine induced type specific antibodies given a lethal challenge of homologous organisms. Many clinical trials and research are taking place to develop a safe vaccine.[15] The challenges faced with vaccination implementation are,

1. Large and appropriate sample size is necessary to demonstrate vaccine efficacy.

2. Duration of protection offered by the vaccine is currently unknown.

3. Shifts in the GBS serotypes responsible for infection over time[10]

Hence until a safe, effective, and economical vaccine achieves licensure, it is very much important to continue current recommendations of screening and treatment.

REVIEW OF LITERATURE

In ancient Indian texts 1500B.C puerperal sepsis have recorded. good hygiene leads to a reduction in the perinatal disease[16].

In 1879 Louis Pasteur described Streptococcus as a causative organism for puerperal sepsis[17].

In the early 1930s, Rebecca Lancefield reported her grouping system for hemolytic streptococci. Group A Streptococci (pyogen) was widely described as the major pathogen associated with puerperal sepsis[18].

GBS initially thought as commensal till 1937 when Fry found several cases of puerperal fever[19].

During the 1970 and 1980s GBS caused neonatal and maternal mortality(15 – 50 %) and morbidity and emerged as an significant pathogen[20].

In the 1980s trials have shown that administering antibiotics to women in labour have demonstrated the reduced risk of transmission of GBS infection in neonates. Thus prevents invasive disease in neonates[21].

Between 1984 and 1989 a prospective study of colonization with GBS in pregnancy among 2877(parturients), Regen JA, Klebanoff MA, Nugent RP found an significant relationship between preterm labour and low birth weight to high colonization of GBS. Neonatal sepsis occurred in 2.6/1000 live births in women with GBS colonization and 0.4/1000 live births without GBS colonization[11].

Between 1996 and 2009 feb – A systematic review by Valkenburg-Vanden Berg AW, HOutman-Roelofsen RL advise to take GBS culture at 35-37 weeks of gestation, if positive for GBS colonization, then give intrapartum prophylaxis not only to GBS positive patients , give to all preterm deliveries. Eventhough 6 % of GBS carriers remains undetected antenatally ,review confirms recommendations to screen pregnant women for colonization of GBS at 35 – 37 weeks gestation.

June 1998-April 1999 - AA Kulkarni, SG Pawar, CA Dharmadikari, RD Kulkarni conducted trial to find out the prevalence of GBS in pregnant women and their neonates. From june 1998 – april 1999 a total of 317 pregnant women was examined for GBS. They concluded that Selective broth medium was found to be a superior transport medium over Stuart transport medium and filter paper method. All isolates are sensitive to Ampicillin, Erythromycin, Pencillin followed by

Chloramphenicol 66.6%. All the strains were resistant to Gentamicin followed by Tertracycline 94.4% and Kanamicin 88.8%

Between 1999-2001 and 2003-2005 – Simetka O, Petros M, Poclesvova H viewed 8484 consecutive term pregnancies of women between 1999-2001 before the introduction of guidelines and 2003-2005following the guidelines. In 1999-2001 there were 3.35/1000 neonates with EOGBS infection in which 1.96/1000 had invasive disease. In group 2003-2005 there were 2.86/1000 neonates with EOGBS infection in which 1.22/1000 had invasive disease. There was 15% decrease of EOGB disease following the introduction of guidelines.

Between September 2002 and march 2004 – Dechen TC, Sumit K, Ranabir P observational cross section al study of genital colonization of GBS was conducted on 524 pregnant women in their third trimester. Three high vaginal swabs was obtained from all the pregnant women admitted at term and preterm labour. Two swabs were used for aerobic culture and third for Gram staining. The culture positivity rate of GBS was 4.77%. the culture positivity in <36 weeks of gestational age was 6.93%. this relation was statistically significant. 28% developed PROM. 64% of culture positives had preterm labour.

In 2003 orrett FA – the prospective study of colonization with group B streptococci in 201 pregnant women.the prevalence of GBS colonization was 32.9%.GBS more frequently from women >24 yr (36.6%) than those younger than 24 yr (26.9%) colonization rates were significantly greater among multigravid women than primigravid women. The carriage rate of GBS in Trinidad remain high.

Vaginal and rectal cultures are obtained from 1197 pregnant women with gestational age more than 24 weeks by Namavar Jahromi B,Poorarian S ,Poorbarfehee S. Out of the 1197 pregnant women, 110 (9.1%) have been positive for Gbs colonization..out of the 110 women (group 1) 36.3% developed preterm labour as compared with 14.3% in group 2.16.3% in group 1 develops PROM compared with 0.5% in group 2. In this study shows the prevalence of group b streptococci in antenatal women is 9.1%

Between 2003 and 2006 june – a retrospective case control study of prevalence of GBS colonization in pregnant women. The total of 118 pregnant women was enrolled for study,59 women in 35^{th} - 37^{th} week of gestation free from risk factors for infection (control group) and 59 women in 25^{th} – 41^{th} week week of gestation with risk factors for infection.GBS colonization was recorded in 24.6% women ,20.3% control and 28.8%

women at risk of infection,yielding a statistically non significant difference.

Between nov 2004 to feb 2005 – the prevalence of GBS colonization in pregnant women at thummasat hospital Thailand by Siripen Tor Udom,Pharcchat Tor Udom ,Wanwarang Hiriote was carried out from Nov 2004 to Feb 2005,406 pregnant women are examined for GBS.GBS colonization rate was 16% in pregnant women. All the positive GBS isolates were sensitive to Ampicillin , Penicillin, Vancomycin and Cephazolin. Resistant was seen with Clindamycin (3%) and Erythromycin (1.5%).

Mcdonald H,Vigneswaran R, O'Loughlin JA conducted a prospective study vaginal swabs are collected from 692 women at 24 weeks of gestation and cultured for GBS. The incidence of group B streptococci in antenatal women is 13.2%. its strongly associated with preterm labour and preterm rupture of membranes[23].

Nomura ML, passini junior R, Oliveira UM , Calil R, two vaginal and two anal swabs were taken from pregnant women with risk factor of preterm labour or premature rupture of membranes. Prevalance of maternal GBS colonization was 27.6%.30% for premature rupture of membranes ,25.2% for preterm labour and 17.8% for preterm labour and

premature rupture of membranes . The neonatal colonization rate was 3.1%.

Krasnianin E , Skret – Magierlo J ,Witalis J ,Barnas E , kluz T ,koziel A ,skret A done a study and related the incidence of GBS colonization in pregnant women and the transmission to the newborn. Total of 100 consecutive parturient women and their newborn are taken into study. GBS colonization positive in 19 women and in 4 newborns . Two vaginal and caesarian delivery in that four colonized newborns.

In 2009 – A systemic review by valkenburg – van den berg AW, sprij AJ ,Dekker FW for association between colonization with GBS and preterm delivery. Totally they reviewed sixteen follow up studies and four case control studies and conclude that there is no association between GBS colonization and preterm delivery whereas they related the increased risk of subsequent maternal GBS colonization in preterm delivery.

In 2012 – a retrospective cohort study of group b streptococcus colonization in repeated pregnancies of 158 women with two or more deliveries ,Page – Ramsey SM, Johnstone SK , Kim B found colonization rate in subsequent pregnancies for initially GBS – colonized women was 42% compared with 19% for women who were not colonized with GBS in the index pregnancy.

In a study involving 326 antenatal women, Chau.S, Arul kumaran .S observed the group B streptococci colonization in 14.1% of pregnant women. All the patients were screened after 32 weeks of gestation.

They further concluded that, antenatal screening for GBS carrier status prior to 32 weeks of gestation might not identify women at high risk of preterm labour or premature rupture of membranes.[20]

Badri MS et al did a cross sectional study to detect the rate of maternal colonization and found to be 20.5%.[36]

AIM OF THE STUDY

- To study the prevalence of group B streptococcal infection at 35-37 weeks of gestation in normal asymptomatic primi gravida, attending antenatal clinic.

- To study the incidence of preterm labour, premature rupture of membrane, and prolonged labour in GBS Positive and in GBS negative women.

- To study the mode of termination of pregnancy in GBS positive and in GBS negative women.

- To study the fetal outcome such as Apgar score, Birth weight, NICU admission in GBS positive and in GBS negative women.

- To study the maternal morbidity in GBS positive and in GBS negative women.

SUBJECTS AND METHODS

All primi gravida women of 35-37 weeks of gestation attending the antenatal clinic of R.S.R.M Lying in Hospital, Stanley Medical college, Royapuram, Chennai were recruited for the study, based on the inclusion and exclusion criteria.

Inclusion criteria:

- All Primi gravida 35-37 weeks of gestation
- Cephalic Presentation
- No history of intake of antibiotics during the past two weeks
- No preexisting medical disorders.

Exclusion criteria:

- Primi gravida less than 35 weeks of gestation
- Non Cephalic presentation
- High risk pregnancies
- Multiple pregnancy
- Multigravida
- History of intake of antibiotics during the past two weeks
- Preexisting medical or surgical disorders.

The study was approved by the Ethical Committee

METHODS

STUDY: CROSS- SECTIONAL

DURATION OF STUDY: JUNE 2012TO DECEMBER 2012

SAMPLE SIZE: **250** Women based on inclusion and exclusion criteria

HISTORY AND EXAMINATION:

- A detailed obstetric history was taken, ie; last menstrual period and expected date of delivery,
- Menstrual history,
- Marital history,
- Obstetric history,
- Past history for medical or surgical disorders ,
- Investigation ie; Height, Weight, BMI,
- BP, Pulse rate,
- Hb%,
- Urine albumin, sugar, deposits,
- Blood sugar,
- Blood grouping and typing,
- HIV,

- VDRL,
- HbsAg,
- Examination ie, Cardiovascular system, Respiratory system,
- Obstetric examination and
- USG examination for gestational age.

SWAB COLLECTION

- Samples are taken by swabbing the skin from vaginal introitus to the anus without using the speculum.
- Materials are transported using Amies medium.
- The transported medium are then transferred to suitable selective broth medium like Todd Hewitt broth supplemented with either gentamycin 8 microgram/ml or nalidixic acid 15 microgram / ml . The inoculated selective broth is incubated for 18 – 24 hours at 35 – 37 C in ambient air or with 5 % Co2.
- Subculturing can be done using sheep blood agar plate.

GBS was identified using CAMP (Christie, Atkins& munch-petersen) test. Composition of culture media

Amies transport media

Charcoal, sodium chloride, phosphate buffer, potassium chloride, sodium thioglycollate, calcium chloride, magnesium chloride, agar.

Todd-Hewitt broth:

Meat infusion, tryptone, glucose, sodium bicarbonate, sodium chloride, di sodium phosphate.

FOLLOW UP

GBS Positive or Negative, Patients are followed up for the rest of the antenatal period.

PARAMETERS

- Preterm labour less than 37 weeks of gestation.
- Premature rupture of membranes greater than 18 hours.
- Mode of onset of delivery whether spontaneous labour , induction labour or lower segment caesarian section.
- Prolonged labor.
- Mode of termination of pregnancy.
- Maternal morbidity such as fever.
- Fetal outcome such as Birth weight, Apgar score, NICU admissions.

Preterm labour - onset of labour prior to 37 completed weeks of gestation was taken as positive criteria for preterm labour.

Premature rupture of membranes – the rupture of membranes prior to the onset of labour is taken as the criteria.

All the deliveries were monitored with partogram.

Mode of Onset of Labor whether Spontaneous or Induced were recorded.

Mode of Delivery

The patients were followed up and the type of delivery noted.

Prolonged Labour:

Labour was considered prolonged when it grossly exceeded the average duration of labour for the first and second stage, based on the partograph (6hrs for first stage and two hrs for second stage).

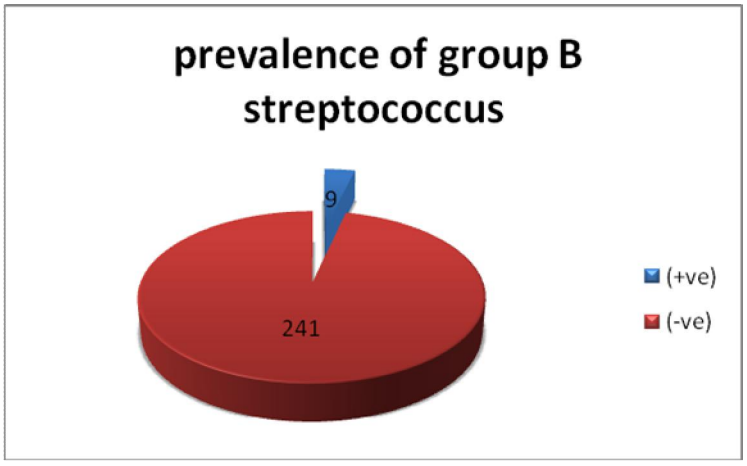
Statistical Methodology:

All the parameters were studied for all the 250 women and the data was analyzed using chi square test. The significant parameters were further studied using odds ratio and the confidence limits were arrived. A p value of <0.05 is statistically significant.

The total number of subjects were screened were 250 out of which 9 patients were found to be positive for Group B streptococcus and 241 were found to be negative for the culture.

TABLE-1 : Group B Streptococcus

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid (+ve)	9	3.6	3.6	3.6
(-ve)	241	96.4	96.4	100.0
Total	250	100.0	100.0	



The prevalence of Group B streptococcus in Primi gravida is 3.6%

TABLE-2 : SOCIOECONOMIC STATUS * GROUP B STREPTOCOCCUS

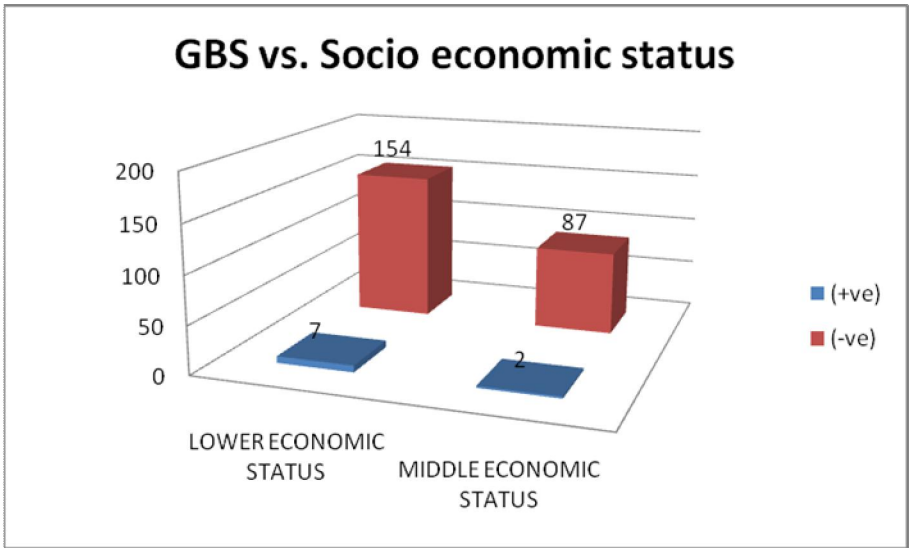
		GBS		Total
		(-ve)	(+ve)	
SES	MIDDLE ECONOMIC STATUS	87 (36.1%)	2 (22.2%)	89 (35.6%)
	LOWER ECONOMIC STATUS	154 (63.9%)	7 (77.8%)	161 (64.4%)
Total		241 100.0%	9 100.0%	250 100.0%

Chi-Square Tests

	Value	df	P value
Pearson Chi-Square	.729[a]	1	.393
Continuity Correction[b]	.249	1	.618

Risk Estimate

	Value	95% Confidence Interval	
		Lower	Upper
Odds Ratio for GBS ((-ve) / (+ve))	.506	.103	2.488



Our hospital essentially caters from the low socioeconomic status. P value is 0.393, 0.618 its statistically insignificant , the colonization does not seem to affect any particular socio economic group.

TABLE-3 Mode of onset of labour * GBS

		GBS		
		(-ve)	(+ve)	Total
Mode of onset of labour	Spontaneous	196 (81.3%)	5 (55.6%)	201 (80.4%)
	LSCS	3 (1.2%)	1 (11.1%)	4 (1.6%)
	Induction	42 (17.4%)	3 (33.3%)	45 (18.0%)
Total		241 100.0%	9 100.0%	250 100.0%

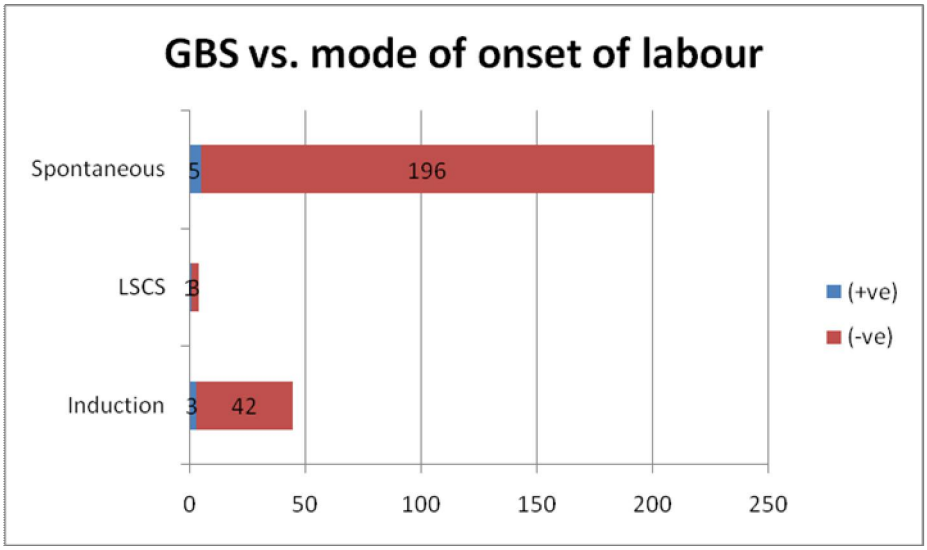
Chi-Square Tests

	Value	df	P value
Pearson Chi-Square	7.215[a]	2	.027

The mode of onset of labour in both group B streptococcal positive and negative women was compared.

- 5 patients (55.6%) in the positive group and 196 (81.3%) in the negative group went in for spontaneous labour
- 1 (11.1%) patients in the positive group and 3(1.2%) in the negative group underwent elective LSCS for non obstetric indications.

- 3 (33.3%) in the positive group and 42 (17.4%) in the negative group were induced electively.



The percentage of patients who went in for spontaneous labour was slightly more in the positive group than in the negative group. However this association was statistically insignificant.

TABLE 4 GBS * Prolonged labour

		Prolonged Labour		
		No	yes	Total
GBS	(+ve)	4 (44.4%)	5 (55.6%)	9 (100.0%)
	(-ve)	233 (96.7%)	8 (3.3%)	241 (100.0%)
Total		237 (94.8%)	13 (5.2%)	250 (100.0%)

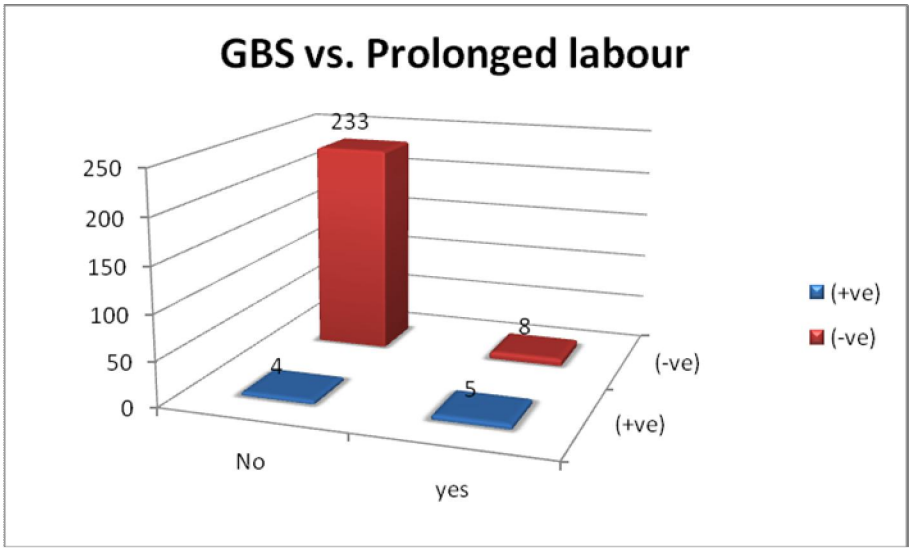
Chi-Square Tests

	Value	df	P value
Pearson Chi-Square	48.023[a]	1	.000
Continuity Correction[b]	38.011	1	.000

Risk Estimate

	Value	95% Confidence Interval	
		Lower	Upper
Odds Ratio for GBS ((-ve) / (+ve))	36.406	8.191	161.821

The percentage of patients who went in for prolonged labour was 55.6% (5) in the positive group and 3.3%(8) in the negative group.



The association of increased duration of labour with group B streptococcal colonization was found to be statistically significant with p value of 0.00

TABLE 5 GBS * Preterm Labour

		Preterm Labour		
		NO	Yes	Total
GBS	(+ve)	**6** (2.6%)	3 (16.7%)	9 (3.6%)
	(-ve)	226 (93.8%)	15 (6.2%)	241 (100.0%)
Total		232 (92.8%)	18 (7.2%)	250 (100.0%)

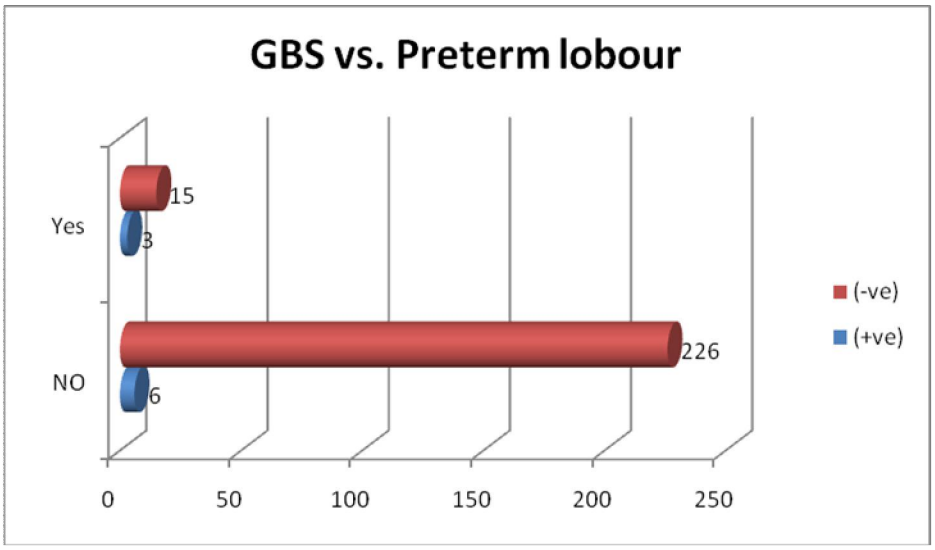
Chi-Square Tests

	Value	df	P value
Pearson Chi-Square	9.543[a]	1	.002
Continuity Correction[b]	5.917	1	.015

Risk Estimate

	Value	95% Confidence Interval	
		Lower	Upper
Odds Ratio for GBS ((-ve) / (+ve))	7.533	1.713	33.132

It was observed that 3(16.7%) patients who were colonized with the GBS went in for preterm labour whereas 15 (6.2%) patients who were not colonized with GBS developed preterm labour.



The association between preterm labour and GBS positive women was found to be statistically significant – p value of 0.002

TABLE 6 GBS * PROM

		PROM		
		No	YES	Total
GBS	(+ve)	7	2	9
		2.9%	25.0%	3.6%
	(-ve)	235	6	241
		97.5%	2.5%	100.0%
Total		242	8	250
		96.8%	3.2%	100.0%

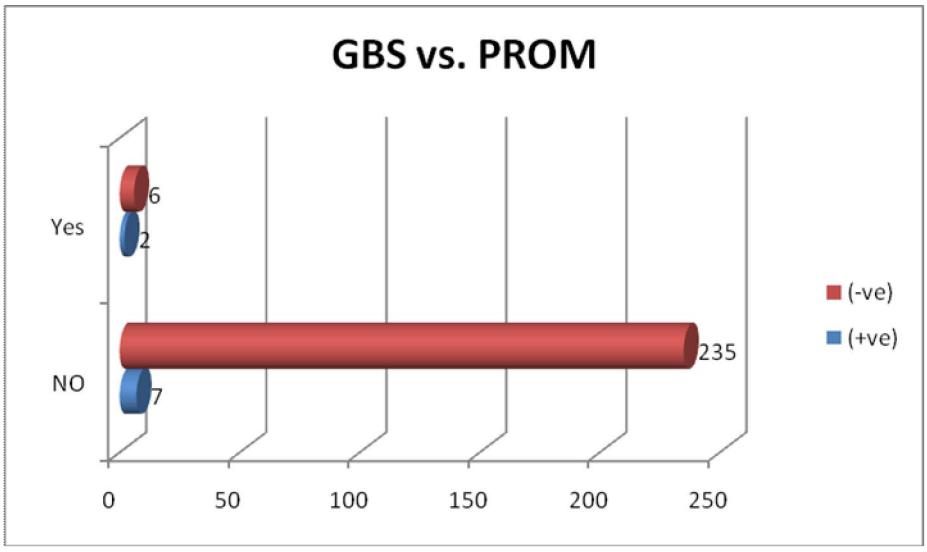
Chi-Square Tests

	Value	df	P value
Pearson Chi-Square	10.906[a]	1	.001
Continuity Correction[b]	5.466	1	.019

Risk Estimate

	Value	95% Confidence Interval	
		Lower	Upper
Odds Ratio for GBS ((-ve) / (+ve))	11.190	1.910	65.571

The number of patients who developed premature rupture of membranes, was found to be 2(25.0%) and 6(2.5%) in group B streptococcal positive and negative women respectively.



The association of premature rupture of membranes with streptococcus colonization was found to be statistically significant, Pvalue0.001

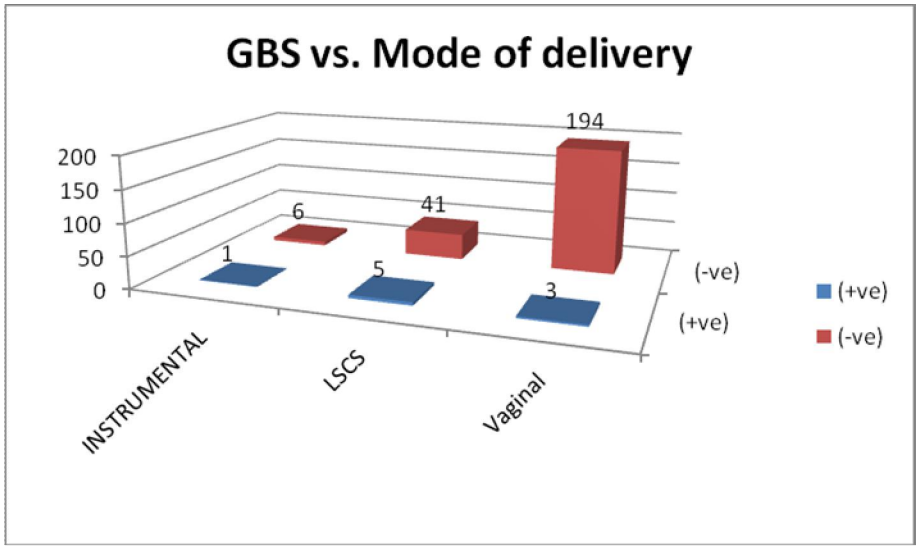
TABLE 7 GBS * Mode of Delivery

		Mode of Delivery			
		INSTRUMENTAL	LSCS	Vaginal	Total
GBS	(+ve)	1	5	3	9
		11.1%	55.6%	33.3%	100.0%
	(-ve)	6	41	194	241
		2.5%	17.0%	80.5%	100.0%
Total		7	46	197	250
		2.8%	18.4%	78.8%	100.0%

Chi-Square Tests

	Value	df	P value
Pearson Chi-Square	11.757[a]	2	.003

The mode of delivery in all patients was followed up. The incidence of LSCS in GBS positive patients was found to be 55.6% and that in the GBS negative group was found to be 17%.



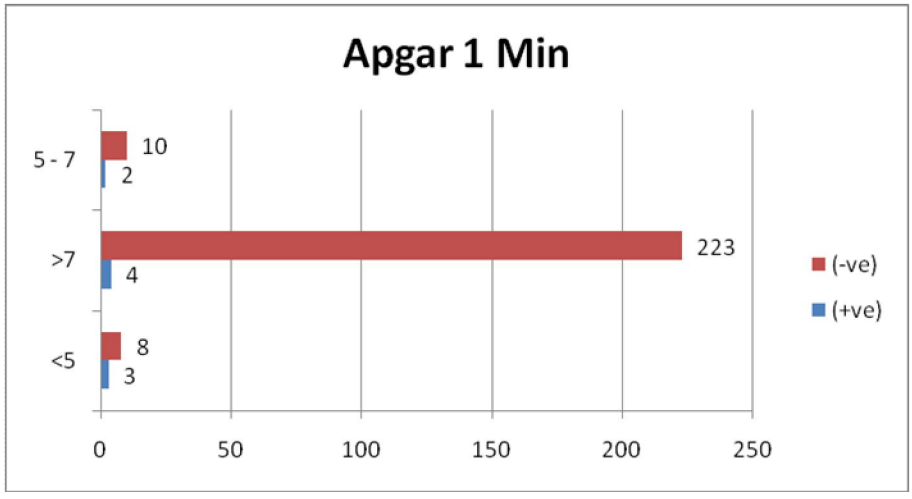
It was found that LSCS delivery is more common in group B streptococcal positive patients than in negative patients with p value of 0.003

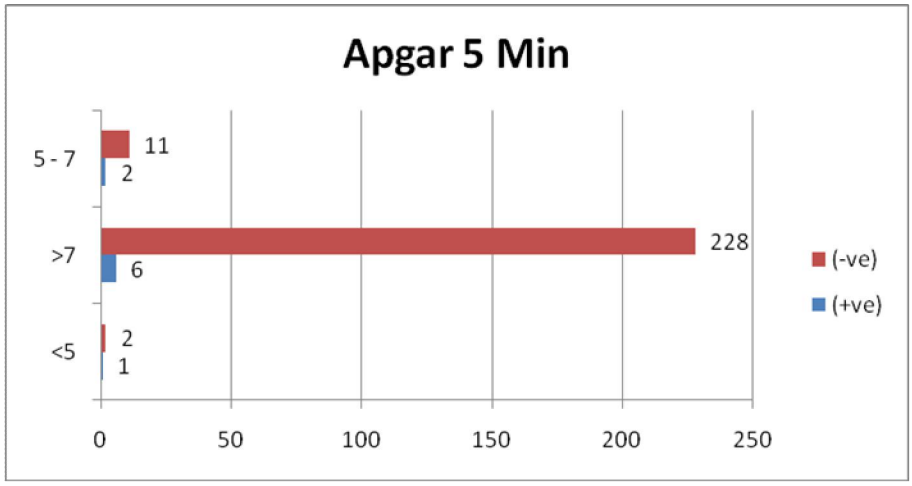
TABLE 8 APGAR SCORE

1 MINUTE	>7	5-7	<5
GBS+ve	4 (1.8%)	2(16.7%)	3(27.3%)
GBS-ve	223(92.5%)	10(4.1%)	8(3.3%)

5 MINUTE	>7	5-7	<5
GBS+ve	6(2.6%)	2(15.4%)	1(33.3%)
GBS-ve	228(94.6%)	11(4.6%)	2(0.8%)

The APGAR score of all the babies born to the study group was observed and it was found that the babies born to Group B streptococcal colonized mothers were having low APGAR score than when compared with that of the positive group.





The association of such low APGAR scores was found to be statistically significant, P value of 0.000 for one minute Apgar, P value of 0.001 for five minute Apgar.

TABLE 9 : BIRTH WEIGHT

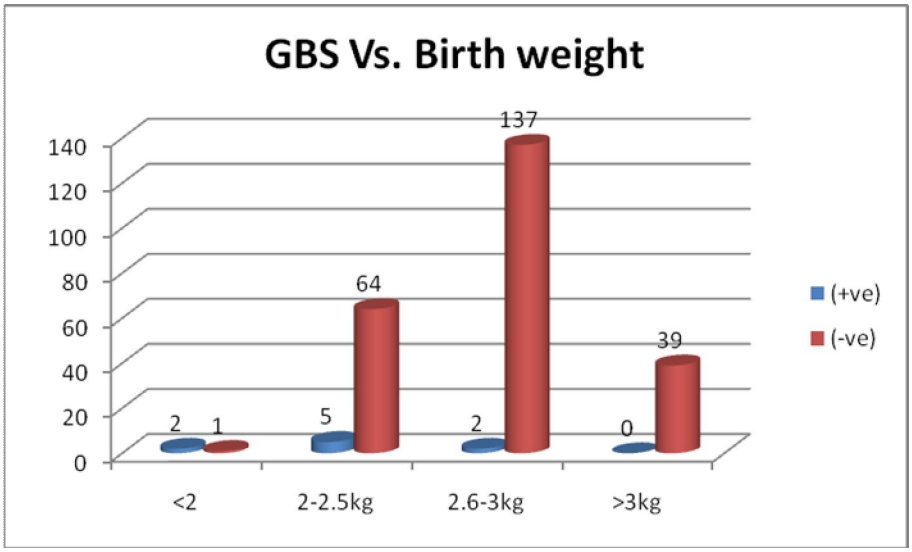
	<2kg	2-2.5kg	2.6-3kg	>3kg
GBS+ve	2 (66.7%)	5 (7.2%)	2 (1.4%)	-
GBS-ve	1 (33.3%)	64 (92.8%)	137 (98.6%)	39(100%)

Chi-Square Tests

	Value	df	P value
Pearson Chi-Square	40.354[a]	3	.000

The birth weight of the newborns born to the study group was divided in to <2kg, 2-2.5kg, 2.6-3kg, >3kg categories.

It was found that 66.7% of the babies born to the mothers in the positive group were having birth weight less than 2 kg, where as 98.6% of the newborns in the negative group were having birth weights in the range of 2.6 -3 kg.



The association between Low Birth Weight and GBS Positive women statistically significant, P value 0.000

TABLE 10 GBS * NICU Admission

		NICU Admission		
		NO	YES	Total
GBS	(+ve)	5	4	9
		2.1%	30.8%	3.6%
	(-ve)	232	9	241
		96.3%	3.7%	100.0%
Total		237	13	250
		94.8%	5.2%	100.0%

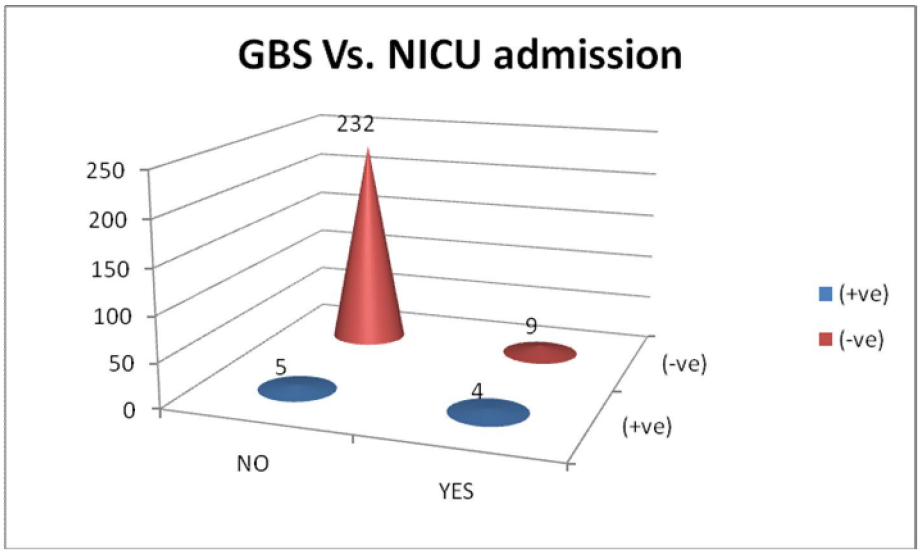
Chi-Square Tests

	Value	df	P value
Pearson Chi-Square	29.168[a]	1	.000
Continuity Correction[b]	21.494	1	.000

Risk Estimate

	Value	95% Confidence Interval	
		Lower	Upper
Odds Ratio for GBS ((-ve) / (+ve))	20.622	4.724	90.031

The number of babies admitted in the Neonatal intensive care unit in the group B streptococcal positive group were 4(30.8%) and in negative group were 9(3.7%).

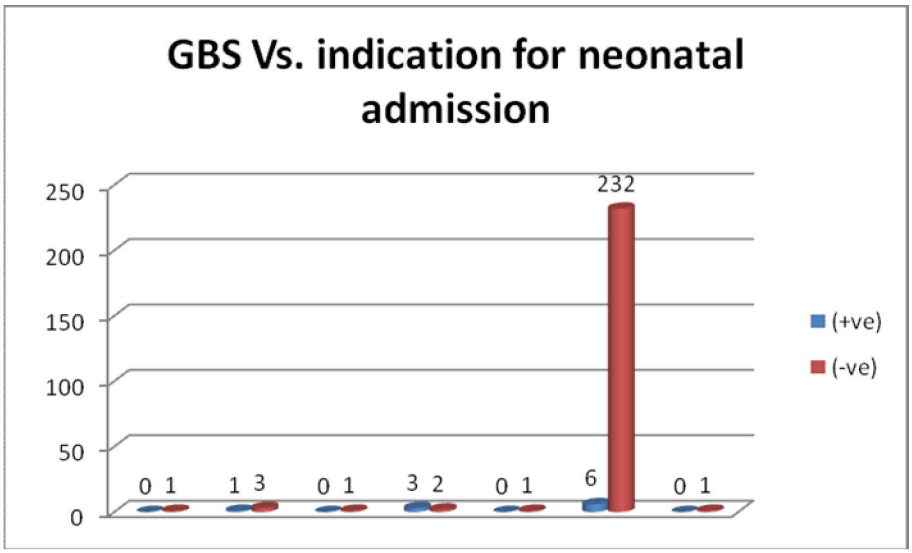


There was significant association between, positive patients and the need for neonatal admission, P value 0.000

TABLE 11 GBS * Indication for Neonatal Admission

	Indication for Neonatal Admission							Total
	Anomaly	Fetal Distress	Hypo Thyroid	LBW	Mother Diabetic	No	Weak Cry	
GBS (+ve)	0 0%	1 25.0%	0 0%	3 60.0%	0 0%	6 2.1%	0 0%	9 3.6%
(-ve)	1 .4%	3 1.2%	1 .4%	2 .8%	1 .4%	222 92.1%	1 .4%	241 100.0%
Total	1 .4%	3 1.2%	1 .4%	5 2.0%	1 .4%	228 91.2%	1 .4%	250 100.0%

The number of babies admitted in the intensive care unit in the group B streptococcal positive women were 4 ,3 due to LBW (60.0%) and 1 due to fetal distress (25%) and in negative group were 9, 2 due to LBW (0.8%), 3 due to fetal distress (1.2%), 4 due to other causes.

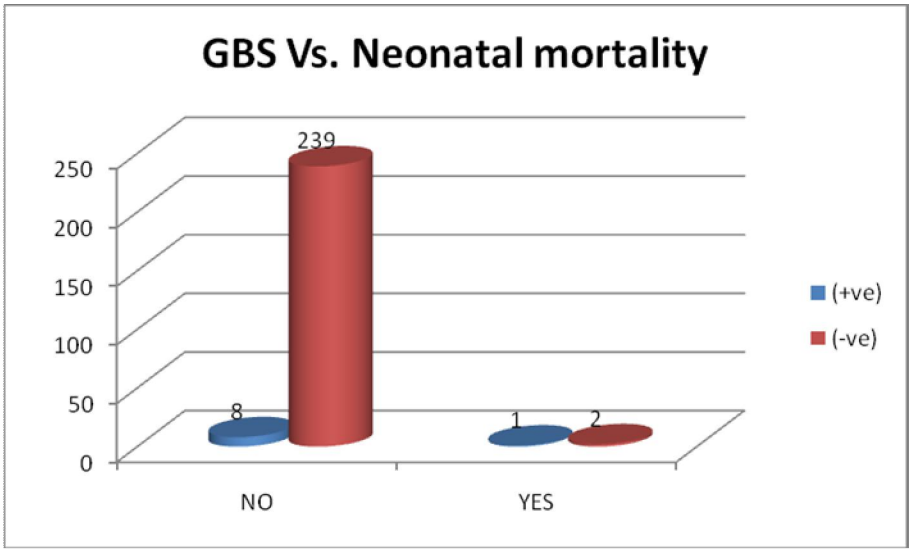


There was significant association between, positive patients and the need for neonatal admission, P value of 0.052

TABLE 12 : NEONATAL SEPSIS AND MORTALITY

	YES	NO
GBS+ve	1 (0.4%)	8 (3.2%)
GBS-ve	2 (0.8%)	239(95.6%)

Out of the 9 babies in the positive group one baby died of sepsis (0.4%) due to streptococcal bacteremia and there were two deaths in the negative group one due to anomaly, other one due to meconium aspiration syndrome.



There was no statistical significance between the GBS status of mother and neonatal mortality when compared among the two groups.

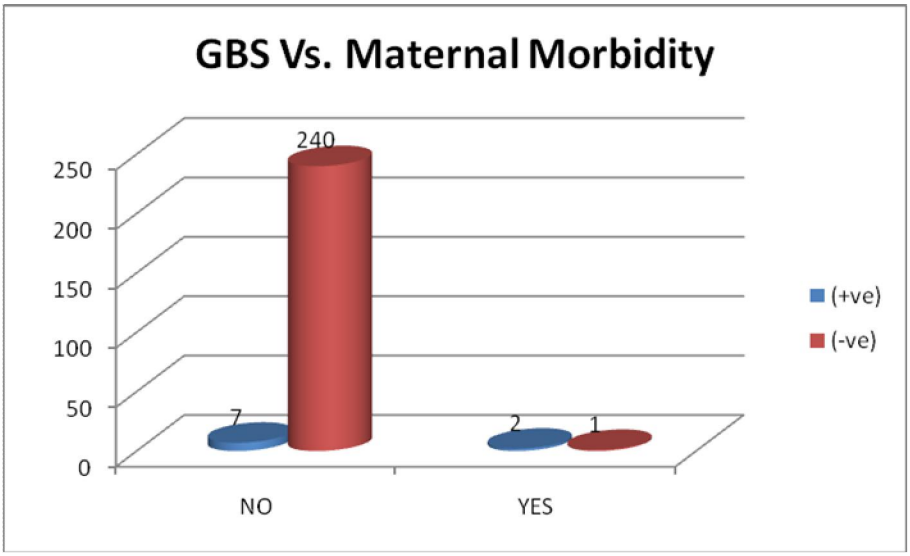
TABLE 13 : MATERNAL MORBIDITY

		Maternal Morbidity		
		NO	YES	Total
	GBS +VE	7	2	9
		2.8%	66.7%	3.6%
	GBS -VE	240	1	241
		97.2%	33.3%	96.4%
TOTAL		247	3	250
		98.8%	1.2%	100.0%

Chi-Square Tests

	Value
Pearson Chi-Square	0.000

The maternal morbidity was measured in terms of fever, wound infection, chorioamnionitis, etc., In this study , in GBS positive group one had fever, another one had wound infection, in GBS negative group one had fever.



There is statistically significant association between GBS POSITIVE women and Maternal morbidity, P value of 0.000

DISCUSSION

This study about GBS infection on the various aspects of pregnancy, labour, fetal outcome was conducted at R.S.R.M Lying in hospital, Stanley medical college between JUNE 2012 AND DECEMBER 2012 in 250 asymptomatic primi gravida attending the antenatal clinic.

The Prevalence of GBS colonization **(TABLE 1**) among the pregnant women was analyzed it was found that the vaginal colonization with GBS differ worldwide approximately 20%

Kulkarani AA, Pawar SG, Dharmadhikari CA, Kulkarni RD [3]found that the vaginal colonization with GBS in pregnant women is 2.52%

Vijayan sharmila,Noyal Mariya Joseph, Thirunavukarasu Aran babu, Latha Chaturvedule, Sujatha Sistla[2] found that the Genital tract GBS colonization in pregnant women is 2.3%

NamavarJahromi B, Poorarian S, Poorbarfeehees found that he prevalence of GBS colonization in pregnant women is 9.1%

Tim SF, Lyon DT, Chung KH[30] found that GBS Prevalence is 7.40%

Lucto M et al[29] found that GBS Prevalence is 12%

Chaus, Arul kumaran et al[24] found that GBS Prevalence is 14.10%

Mc Donald, Vigneshwaran R, O' Loughlin[23] found that GBS Prevalence is 13.20%

Manuel et al[28] found that GBS Prevalence is 14.60%

Liang ST, Lau SP, Fok TF[25] found that GBS colonization in pregnant women is 19%

Regan JA, Klebanoff et al[22] found that GBS Prevalence is 21%

Dalal S Lahiri[47] found that GBS Prevalence rate is 10%

Towers Creig V, Lewis David[46] found that GBS Prevalence rate is 13%

Garland SM, Kelly N[40] found that GBS Prevalence rate is 12.90%

Mani V, Jadhav[49] found that GBS Prevalence rate is 14%

Choudary et al [48] found that GBS Colonization rate is 16%

Badri MS et al[41] found that GBS colonization rate is 20.50%

Zalenik DF et al[31] found that GBS prevalence rate is 14%

Mariijane, Krohn et al[34] found that GBS Prevalence rate is 21.60%

Campdel et al[38] found that the GBS prevalence rate is 22%

Mc Duffe RS Jr, Mc Nabbs[32] found that the GBS prevalence rate is 18%

Present study was found that the GBS colonization in pregnant women is 3.6%

The prevalence of GBS towards the age group <20 year, 21-25 year, >25 year were analyzed. It was found that there was no correlation between the presence of GBS infection and the age group.

Gerards CJ, Lab BP, Hoog [37] found no correlation between age and GBS colonization.

Hastings MJ, Easmons CS, Neill J [44] found that no correlation between age, blood group and GBS Colonization.

In **TABLE 2,** the prevalence of GBS in a Lower and Middle socioeconomic group was analyzed, there was no significant correlation between Lower and Middle socio economic group and GBS Colonization.

In **TABLE 3,** Mode of onset of labour among the study group were analyzed.

Gerards CJ, Lab BP[37] studied the effect of streptococcus carrier state on the mode of onset of labour in patients with GBS colonization went in for spontaneous labour, there was no statistical correlation between the mode of onset of labour and GBS Positive women.

The same was observed in our study where 5 (55.6%) GBS positive women went in for spontaneous labour and 196 (81.3%) GBS negative women went in for spontaneous labour. There was no statistically significant correlation, between GBS positive women and mode of onset of labour.

In **TABLE 4,** The incidence of prolonged labour in GBS positive and GBS negative women were analyzed.

Hastings MJ, Easmon CS, Neill J[44] found that the incidence of prolonged labour in GBS positive women is 20%

Mc Duffee RS Jr, Mc Nabbs[32] found that the incidence of prolonged labour in GBS positive women is 33%

Present study shows that the percentage of patients who went in for prolonged labour was 55.6% (5) in the positive group and 3.3% (8) in the negative group.

There was statistically significant association between GBS colonization and prolonged labour, P value of 0.00.

In **TABLE 5,** The incidence of preterm labour in GBS positive women was analyzed.

Mc Duffee RS Jr, Mc Nabbs[32] found that the incidence of preterm labour in GBS positive women was 13.00%

Feikin DR, Thorsen P et al[42] found that the incidence of preterm labour in GBS positive women was 14.00%

Regan JA, Klebanoff, Nugent[11] found that the incidence of preterm labour in GBS positive women was 14.70%

Joshi, Chen et al found that the incidence of preterm labour in GBS positive women was 15.60%

Regan Ja, Chau S et al[22] found that the incidence of preterm labour in GBS positive women was 18.00%

Mc Donald, Vigneshwaran, O' Loughlin[23] found that the incidence of preterm labour in GBS positive women was 18.70%

CHS Chan, KM Wan, WH Lee[27] found that the incidence of preterm labour in GBS positive women was 20.00%

Koshelena et al[36] found that the incidence of preterm labour in GBS positive women was 21.70%

Matorass R, Garecea percea[39] found that the incidence of preterm labour in GBS positive women was 28.20%

Manuel et al[28] found that the incidence of preterm labour in GBS positive women was 35.00%

Present study shows that the 3 patients (16.7%) who were colonized with the GBS positive went in for preterm labour whereas 15 (6.2%) patients who were not colonized with GBS developed preterm labour.

The association between preterm labour and GBS positive women was found to be statistically significant, P value 0.002

The incidence of preterm labour was found to be 7.5 times more common in patients colonized with GBS, than when compared to patients who were non-colonized.

In all the above references and the present study, the association between GBS positive and preterm labour found to be statistically significant.

In **TABLE 6**, the incidence of Premature Rupture of Membrane in GBS positive women was analyzed.

CHS Chan, KM Wan, WH Lee[27] found that the incidence of PROM in GBS positive women was 14.20%

Koshelena et al Lee[36] found that the incidence of PROM in GBS positive women was 13.70%

Mc Duffee RS Jr, Mc Nabbs Lee[32] found that the incidence of PROM in GBS positive women was 13.00%

Mc Donald, Vigneshwaran, O' Loughlin Lee[23] found that the incidence of PROM in GBS positive women was 9.90%

Regan JA, Chau S, James Lee[22] found that the incidence of PROM in GBS positive women was 8.10%

Present study shows that the 2 patients (25%) who were colonized with the GBS Positive went in for PROM whereas 6 (2.5%) patients who were not colonized with GBS developed PROM.

The association between PROM and GBS positive women was found to be statistically significant, P value of 0.001

In all the above references and the present study , the association between GBS positive and PROM found to be statistically significant.

In **TABLE 7**, Mode of delivery in study group was analyzed.

Katz et al[35] found that the incidence of LSCS in GBS positive women was 42.4%

Liang ST, Lab BP, Fok TF[25] found that the incidence of LSCS in GBS positive women was 49.2%

Present study shows the incidence of LSCS in GBS positive patients was found to be 55.6% and that in the GBS negative group was found to be 17%

It was found that LSCS delivery is more common in GBS positive patients than in negative patients with P value of 0.003

In all the above references and the present study, the association between GBS Positive and LSCS found to be statistically significant.

In **TABLE 8,** APGAR SCORE at one minute and five minute of all the babies born to the women under study were analyzed.

Gerards CJ, Lab BP, Hoog, Kamp Korstange JA[37] in a study reported Low Apgar score in GBS positive women (10.2 %) when compared to GBS negative women.

CHS Chan, KM Wan , WH Lee[27] found that the low Apgar score in GBS positive women (10%) when compared to GBS negative women.

Present study shows the incidence of Low Apgar Score in GBS positive patients found to be 27.3 % and that in the GBS Negative group was found to be 3.3 %

It was found that Low Apgar score is more common in GBS positive patients than in Negative patients, P value of

In all the above references and the present study, the association between GBS positive and Low Apgar score found to be statistically significant.

In **TABLE 9**, The Birth Weight of all the babies born to the women under study were analyzed.

Regan JA, Klebanoff, Nugent [11]found that the percentage of Low Birth Weight in GBS positive women was 20.6%

Matorras, Garecea Percea et al[39] found that the percentage of Low Birth Weight in GBS positive women was 20%

Gerards CJ, Hoog et al[37] found that the percentage of Low Birth Weight in GBS positive women was 30.1%

Present study shows the incidence of low birth weight in GBS positive women was 60%

In all the above references and present study , the association between low birth weight and GBS Positive women, statistically significant.

In **TABLE 10**, The percentage of NICU Admission in GBS positive women were analyzed.

Beyer KM[33] found that the percentage of GBS infants admitted was 10-20%

Chan CHS, KM Wan, WH Lee[27] found that the percentage of GBS infants admitted was 12%

Gerards CJ, Lab BP[37] found that the percentage of GBS infants admitted was 19.5%

Present study shows that the number of babies admitted in the neonatal intensive care unit in the Group B streptococcal positive group were 4 (30.8%)and in negative group were 9 (3.7%)

There was Significant association between positive patients and the need for neonatal admission, P value 0.000

In **TABLE 12,** The Neonatal Sepsis in GBS positive was analyzed.

Regan JA, Klebanoff[11] found that the rate of neonatal sepsis in GBS positive women was 26%

Liang, Lan SP, Fok TF[25], found that the rate of neonatal sepsis in GBS positive women was 16%

CHS Chan, KM Wan, WH Lee[27] found that the rate of neonatal sepsis in GBS positive women was 13%

Boyer KM[33] found that the rate of neonatal sepsis in GBS positive women was 18%

Katz et al[35] found that the rate of neonatal sepsis in GBS positive women was 10-30%

Campbel et al[38] found that the rate of neonatal sepsis in GBS positive women was 14%

Present study shows the incidence of neonatal sepsis in GBS positive women was 0.4 %

In **TABLE 12,** THE NEONATAL MORTALITY was analyzed.

Beyer KM et al[33] found that the rate of neonatal mortality in GBS positive women was 10-20%

Koshelena et al[36] found that the rate of neonatal mortality in GBS positive women was 12.6%

Campbel et al[38] found that the rate of neonatal mortality in GBS positive women was 10.6%

Present study shows the incidence of neonatal mortality in GBS positive women was 0.4%

There was no statistical significance between GBS status of mother and neonatal mortality when compared among the two groups.

In **TABLE 13,** Maternal Morbidity in GBS positive women was analyzed by way of post partum pyrexia, urinary tract infections, wound infection at the caesarean site and episiotomy wound etc.,

Hastings et al[44] found that the maternal morbidity in GBS positive women was 20%

Mc Duffee RS Jr, Mc Nabbs[32] found that the maternal morbidity in GBS positive women was 35.6%

Present study shows the maternal morbidity in GBS positive women was 66.7 %

There was statistical significance between the GBS status and Maternal Morbidity when compared among the two groups.

There was no Maternal Mortality in the study group of both the categories.

SUMMARY

- The prevalence of group B streptococcal colonization in asymptomatic primi gravida in the study population was 3.6%

- The maternal colonization with group B streptococci was not related to age, and socio economic status of the patients.

- There was an increased incidence of preterm labour (16.7%) in patients colonized with group B streptococci, when compared to those who were not colonized (6.2%).

- There was an increased incidence of Prmature Rupture of membranes (25.0%) in patients colonized with group B streptococci, when compared to those who were not colonized (2.5%).

- There was an increased incidence of prolonged labour (55.6%), among the positive group when compared to the negative group (3.3%) .

- There was an increased incidence of low APGAR scores among babies born to positive women than when compared to negative women.

- There was an increased incidence of operative deliveries (LSCS) among GBS colonized women (55.6%) than when compared to GBS negative women (17.0%).

- There was statistically significant, increased rate of neonatal admissions (30.8%) to babies born to GBS positive mothers than in the negative group (3.7%).

- The mortality rate of the neonates in the GBS positive group was 0.4%. This low rate could be due to the improved neonatal care available at our institution.

- There was significant maternal morbidity (analyzed in terms of fever, wound infections etc.,) in GBS positive group (66.7%), when compared to GBS negative group (33.3%).

- There was no maternal mortality in both the groups.

From the above statements it could be inferred that the screening of all the pregnant women at 37-38 weeks of gestation, serves to be an important factor in reducing the incidence of preterm labour, premature rupture of membranes, prolonged labour, operative deliveries and hence decrease the probability of low birth weight, low APGAR scores, and hence subsequent morbidity and mortality of both the mother and the newborn.

CONCLUSION

a. The prevalence of Group B streptococcus infection at 35-37 weeks of gestation in normal, asymptomatic primi gravida attending the routine antenatal clinic in a level three tertiary care institution is 3.6%

b. The incidence of preterm labour in GBS colonized women is 16.7%, and in non colonized women is 6.2%. There is statistically significant increased risk of preterm labour in GBS positive women.

c. The incidence of premature rupture of membranes in colonized women is 25.0% and in non colonized women is 2.5%. The association of premature rupture of membranes and GBS positive status is statistically significant.

d. The incidence of prolonged labour in colonized women is 55.6% and in non colonized women is 3.3%. The association of prolonged labour and GBS positive status is statistically significant.

e. There is statistically increased incidence of operative deliveries (55.6%) in GBS positive women, when compared to negative women. (17.0%).

f. The puerperal morbidity in GBS positive women is 66.7%, and in negative women is 33.3%. There is significant increased puerperal morbidity in GBS positive women.

g. There is statistically significant increase in neonatal morbidity in the form of increased neonatal admissions in GBS positive women (30.8%), when compared to GBS negative women. (3.7%).

h. The neonatal mortality rates were not significant (1/9 babies) in babies born to GBS positive patients when compared to GBS negative patients.(2/241 babies).

All the above conclusions, point out the importance of GBS screening during the antenatal period and the need to include it in the screening protocol of our health systems in the present era of evidence based medicine.

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PROFORMA

NAME:

AGE:

IP NO:

SOCIOECONOMIC STATUS:

GA:

LMP:

EDD:

MENSTRUAL H/O:

MARITAL H/O:

OBSTETRIC H/O:

PAST H/O:

VITALS:

TEMP-

BP-

PULSE RATE-

GENERAL EXAMINATION:

HEIGHT:

WEIGHT:

BMI:

CARDIOVASCULAR EXAMINATION:

RESPIRATORY EXAMINATION:

OBSTETRIC EXAMINATION:

INVESTIGATION:

Hb-

URINE ALBUMIN,-

SUGAR-

BLOOD SUGAR-

BLOOD UREA-

BLOOD GROUPING AND TYPING-

HIV-

VDRL-

HbSAg-

USG-

MATERNAL OUTCOME:

MODE OF ONSET OF LABOUR-

PROLONGED LABOUR-

PRETERM LABOUR-

PROM-

MODE OF DELIVERY-

MATERNAL MORBIDITY-

FETAL OUTCOME:

APGAR SCORE-

BIRTH WEIGHT-

NICU ADMISSION-

INDICATION OF NICU ADMISSION-

NEONATAL MORTALITY-

MASTER CHART

S.No.	Name	Age/IP No.	LMP	EDD	GA	SES	Mode of onset of labour	Prolonged labour	Mode of Delivery	Preterm Labour	PROM	Apgar		Birth Weight (K.G)	NICU Admission	Indication for Neonatal Admission	Neonatal Mortality	Maternal Morbidity	GBS
												1"	5"						
1	Nadhiya	20/9284	22.01.11	29.08.12	36	L	Spontaneous	No	Vaginal	Yes	No	8	8	1.9	YES LBW	LBW	YES (SEPSIS)	-	POSITIVE
2	Revathy	26/9282	23.12.11	30.09.12	38	L	Induction	No	Vaginal	NO	No	8	8	3.3	NO	NO	NO	-	(-ve)
3	Pachiammal	24/9253	07.01.12	14.10.12	37	L	Spontaneous	No	Vaginal	NO	No	9	8	2.4	NO	NO	NO	-	(-ve)
4	Jayalakshmi	27/9281	04.09.11	11.08.12	38	L	Spontaneous	No	Vaginal	NO	No	8	9	2.3	NO	NO	NO	-	(-ve)
5	Yasmin	24/9288	14.02.11	21.11.12	38	M	Spontaneous	No	Vaginal	NO	No	8	9	3.15	NO	NO	NO	-	(-ve)
6	Kanchana	20/9251	01.02.11	08.11.12	36	L	Spontaneous	No	Vaginal	NO	No	9	8	2.2	NO	NO	NO	-	(-ve)
7	Saraswathy	19/9239	21.01.12	28.10.12	35	L	Spontaneous	No	Vaginal	Yes	No	8	8	2.0	YES LBW	LBW	NO	-	(-ve)
8	Savitha	24/9291	13.02.11	20.11.12	36	M	Spontaneous	No	Vaginal	NO	No	8	8	2.2	NO		NO	-	(-ve)
9	Tamil Selvi	16/8700	15.11.11	22.08.12	37	L	Spontaneous	No	LSCS	NO	No	8	8	2.4	NO		NO	-	(-ve)
10	Parvathy	27/9315	04.12.11	11.09.12	37	L	Spontaneous	No	Vaginal	NO	No	7	9	2.5	NO		NO	-	(-ve)
11	Jothi	19/9324	11.02.12	18.11.12	38	M	Spontaneous	No	Vaginal	NO	No	9	8	3.25	NO		NO	-	(-ve)
12	Sowmiya	19/9314	22.01.12	29.10.12	38	L	Spontaneous	No	Vaginal	NO	No	9	8	2.6	NO		NO	-	(-ve)
13	Mala	23/9317	12.01.12	19.10.12	38	M	Spontaneous	No	Vaginal	NO	No	8	8	2.8	NO		NO	-	(-ve)
14	Muniamma	19/9322	17.11.11	24.08.12	38	M	Spontaneous	No	Vaginal	NO	No	8	8	2.8	NO		NO	-	(-ve)
15	Aruna	20/9256	06.02.11	13.11.12	37	L	Induction	No	Vaginal	NO	No	8	8	2.6	NO		NO	-	(-ve)
16	Tamil Selvi	19/9287	04.01.12	11.10.12	37	L	Spontaneous	No	Vaginal	NO	No	8	8	2.8	NO		NO	-	(-ve)
17	Arul	19/9309	04.09.11	11.08.12	37	L	Spontaneous	No	Vaginal	Yes	No	8	8	2.7	NO		NO	-	(-ve)
18	Saraswathy	19/9300	12.02.11	19.11.12	38	L	Induction	-	Vaginal	-	-	8	9	2.8	NO	-	-	-	(-ve)
19	Divya	20/9206	26.03.12	03.12.12	39	L	Spontaneous	-	Vaginal	-	-	8	8	3.2	NO	-	-	-	(-ve)
20	Anitha	21/9323	27.03.12	04.12.12	38	L	Spontaneous	-	Vaginal	-	-	8	8	2.4	NO	-	-	-	(-ve)
21	Sumathy	22/9286	08.11.11	15.08.12	37	L	Induction	-	Vaginal	-	-	7	8	2.4	NO	-	-	-	(-ve)
22	Maliga	19/9304	13.09.11	20.08.12	38	M	Spontaneous	-	Vaginal	-	-	8	8	2.8	NO	-	-	-	(-ve)
23	Umar Mageshwari	24/9269	04.01.12	11.10.12	38	M	Spontaneous	-	Vaginal	-	-	8	8	3.2	NO	-	-	-	(-ve)
24	Sathya	23/9322	09.02.11	16.11.12	38	L	Spontaneous	-	LSCS	-	-	9	9	3.0	NO	-	-	-	(-ve)
25	Mohana	20/9331	20.02.11	28.11.12	37	L	Spontaneous	-	Vaginal	-	-	9	9	2.8	NO	-	-	-	(-ve)
26	Salme Begum	22/9357	17.11.11	24.08.12	38	L	Spontaneous	-	Vaginal	-	-	8	8	3.1	NO	-	-	-	(-ve)
27	Nirosha	19/9269	08.10.11	15.07.12	38	L	Spontaneous	-	Vaginal	-	-	9	9	2.3	NO	-	-	-	(-ve)
28	Mahalakshmi	21/9388	04.09.11	11.08.12	38	L	Spontaneous	yes	Instrumental outlet	-	yes	7	8	2.8	NO	-	-	FEVER	POSITIVE
29	Ilavarasi	20/9343	01.11.11	08.08.12	35	L	Spontaneous	-	Vaginal	Yes	-	9	9	2.4	NO	-	-	-	(-ve)
30	Karpagam	23/9391	02.12.11	09.09.12	37	M	Spontaneous	-	Vaginal	-	-	8	8	2.8	NO	-	-	-	(-ve)
31	Rhmathnisha	21/9385	24.09.11	31.08.12	38	L	Spontaneous	-	Vaginal	-	-	8	8	2.8	NO	-	-	-	(-ve)
32	Subhashini	20/9231	28.02.11	05.11.12	38	L	Spontaneous	-	LSCS	-	-	8	8	3.0	NO	-	-	-	(-ve)
33	Kuppulakshmi	21/9268	26.01.12	02.10.12	39	L	Induction	-	Vaginal	-	-	9	9	2.9	NO	-	-	-	(-ve)
34	Shanthi	26/9275	23.12.11	30.09.12	39	L	Induction	-	Vaginal	-	-	8	8	3.2	NO	-	-	-	(-ve)
35	Sharmila	25/9295	08.10.11	15.07.12	38	L	Spontaneous	-	LSCS	-	-	8	8	2.6	NO	-	-	-	(-ve)
36	Sumathi	19/9333	04.09.11	11.08.12	38	M	Spontaneous	-	Vaginal	-	-	8	8	2.4	NO	-	-	-	(-ve)
37	Uma	21/9379	01.13.12	08.12.12	38	M	Spontaneous	-	Vaginal	-	-	8	8	2.5	NO	-	-	-	(-ve)
38	Mohana	22/9330	16.12.11	23.09.12	37	M	Induction	yes	LSCS	-	-	7	8	2.4	YES	LBW	-	-	POSITIVE
39	Vijayalakshmi	25/9381	06.09.11	13.08.12	36	L	Spontaneous	-	Vaginal	Yes	-	8	8	2.4	NO	-	-	-	(-ve)
40	Menaka	23/9416	18.02.11	25.11.12	38	L	Spontaneous	-	Vaginal	-	-	8	8	3.15	NO	-	-	-	(-ve)

41	Ammurani	24/9376	09.11.11	16.08.12	37	L	Spontaneous	-	Vaginal	-	-	8	8	2.8	NO	-	-	-	(-ve)
42	Manimala	25/9420	23.01.12	30.10.12	37	L	Spontaneous	-	Vaginal	-	-	9	9	2.8	NO	-	-	-	(-ve)
43	Thiruveni	22/9355	22.12.11	29.09.12	39	L	Spontaneous	-	Vaginal	-	-	9	9	3.25	NO	-	-	-	(-ve)
44	Sangeetha	23/9419	17.02.11	24.11.12	38	M	Spontaneous	-	Vaginal	-	-	7	9	2.7	NO	-	-	-	(-ve)
45	Nandhini	19/9352	23.02.11	30.11.12	38	M	Spontaneous	-	Vaginal	-	-	8	8	3.2	NO	-	-	-	(-ve)
46	Noorhabiba	22/9344	21.02.11	28.11.12	37	L	Induction	-	Vaginal	-	-	8	9	2.75	NO	-	-	-	(-ve)
47	Parvathy	22/9431	13.12.11	20.09.12	38	L	Spontaneous	-	LSCS	-	-	8	9	2.9	NO	-	-	-	(-ve)
48	Pricills	24/9452	13.09.11	20.08.12	37	M	Spontaneous	-	Vaginal	-	-	8	8	2.32	NO	-	-	-	(-ve)
49	Bharathi	22/9448	01.01.12	08.10.12	38	M	Spontaneous	-	Vaginal	-	-	8	9	3.0	NO	-	-	-	(-ve)
50	Kavitha	19/9473	05.11.11	12.08.12	39	L	Induction	-	LSCS	-	-	9	9	2.9	NO	-	-	-	(-ve)
51	Latha	20/9488	15.12.11	22.09.12	34	L	Spontaneous	-	Vaginal	Yes	-	7	8	2.3	NO	-	-	-	(-ve)
52	Keerthana	18/9921	21.12.11	28.09.12	38	L	Spontaneous	-	Vaginal	-	-	9	9	3.2	NO	-	-	-	(-ve)
53	Jagadeeshwari	19/9497	13.02.11	20.01.12	38	M	Induction	-	Vaginal	-	-	9	9	2.9	NO	-	-	-	(-ve)
54	Dharani	30/9493	24.03.12	01.12.12	38	M	Spontaneous	-	Vaginal	-	-	8	8	2.9	NO	-	-	-	(-ve)
55	Anjali	22/9506	09.11.11	16.08.12	39	L	Spontaneous	-	Vaginal	-	-	8	9	3.2	NO	-	-	-	(-ve)
56	Kanchana	19/9524	09.02.11	16.11.12	37	L	Spontaneous	-	Vaginal	-	-	9	9	2.2	NO	-	-	-	(-ve)
57	Nandhini	20/9521	22.02.11	29.11.12	37	M	Spontaneous	-	LSCS	-	-	8	8	2.7	NO	-	-	-	(-ve)
58	Sherin	19/9499	21.11.11	28.08.12	38	M	Spontaneous	-	Vaginal	-	-	9	9	3.1	NO	-	-	-	(-ve)
59	Nandhini	20/9567	04.01.12	11.10.12	38	L	Spontaneous	-	Vaginal	-	-	8	9	2.8	NO	-	-	-	(-ve)
60	Yamuna	19/9515	10.12.11	07.09.12	36	L	Spontaneous	yes	Vaginal	Yes	-	4	7	2.4	YES	FETAL DISTRESS	-	Wound infection	POSITIVE
61	Paween Fathima	21/9588	24.09.11	31.08.12	38	L	Induction	-	Vaginal	-	-	8	9	2.6	NO	-	-	-	(-ve)
62	Sangeetha	20/9525	20.02.11	27.11.12	37	L	Spontaneous	-	Vaginal	-	-	8	9	2.3	NO	-	-	-	(-ve)
63	Anitha	21/9582	04.12.11	11.09.12	38	L	Spontaneous	-	LSCS	-	-	8	9	2.8	NO	-	-	-	(-ve)
64	Bommi	26/2578	02.01.12	09.10.12	37	L	Spontaneous	-	Vaginal	-	-	9	9	2.4	NO	-	-	-	(-ve)
65	Suguna	20/9604	30.03.12	07.12.12	38	L	Induction	-	Vaginal	-	-	8	8	2.9	NO	-	-	-	(-ve)
66	Shakila begum	20/9616	12.12.11	19.09.12	38	L	Spontaneous	-	Vaginal	-	-	9	9	3.3	NO	-	-	-	(-ve)
67	Shanthi	18/9610	08.10.11	15.07.12	39	L	Spontaneous	-	Vaginal	-	-	9	9	3.0	NO	-	-	-	(-ve)
68	Srikala	23/9629	06.02.11	13.11.12	37	M	Spontaneous	-	Vaginal	-	-	8	8	2.4	NO	-	-	-	(-ve)
69	Nalini	23/9551	13.02.11	20.11.12	37	L	Spontaneous	yes	LSCS	-	-	4	7	2.9	NO	-	-	-	POSITIVE
70	Soapna	19/9624	21.02.11	28.11.12	37	L	Spontaneous	-	Vaginal	-	-	8	8	2.4	NO	-	-	-	(-ve)
71	Devi	22/9539	24.09.11	31.08.12	38	L	Induction	-	Vaginal	-	-	8	8	2.6	NO	-	-	Fever	(-ve)
72	Varlakshmi	19/9653	04.03.11	11.12.12	39	M	Spontaneous	-	LSCS	-	-	8	8	3.6	NO	-	-	-	(-ve)
73	Roja	19/9674	21.01.12	28.10.12	38	M	Spontaneous	-	Vaginal	-	-	7	7	2.8	NO	-	-	-	(-ve)
74	Revathy	20/9455	13.01.12	20.10.12	38	L	Spontaneous	-	Vaginal	-	-	8	8	2.4	NO	-	-	-	(-ve)
75	Thaveega	18/9682	08.02.11	15.11.12	38	L	Spontaneous	-	LSCS	-	-	8	8	2.7	NO	-	-	-	(-ve)
76	Bharathi	23/9695	20.02.11	27.11.12	38	L	Induction	-	Vaginal	-	-	8	8	2.9	NO	-	-	-	(-ve)
77	Gowri	22/9715	08.10.11	15.07.12	37	M	Spontaneous	-	Vaginal	-	-	8	8	2.8	NO	-	-	-	(-ve)
78	Sagammal	18/9723	05.12.11	12.09.12	39	M	Spontaneous	-	Vaginal	-	-	8	8	3.25	NO	-	-	-	(-ve)
79	Vaedamani	25/9686	04.01.12	11.10.12	37	L	Spontaneous	-	LSCS	-	-	8	9	2.4	NO	-	-	-	(-ve)
80	Sumaya Begum	19/9788	12.12.11	19.09.12	37	L	Spontaneous	-	Vaginal	-	-	8	9	2.7	NO	-	-	-	(-ve)
81	Amudha	22/9777	24.01.12	31.10.12	38	M	Spontaneous	-	Vaginal	-	-	7	9	2.8	NO	-	-	-	(-ve)
82	Kalaiselvi	21/6036	23.02.11	30.11.12	38	L	Spontaneous	-	Vaginal	-	-	8	9	3.6	NO	-	-	-	(-ve)
83	Bharathi	27/6040	01.11.11	08.08.12	38	L	Spontaneous	-	Vaginal	-	-	8	9	2.9	NO	-	-	-	(-ve)
84	Karpagam	21/6050	06.01.12	13.10.12	38	M	Induction	-	LSCS	-	-	9	9	3.12	NO	-	-	-	(-ve)
85	Jaynthi	20/6051	13.02.11	20.11.12	37	M	Spontaneous	-	Vaginal	-	-	9	9	3.0	NO	-	-	-	(-ve)
86	Tanizh	21/6028	04.08.11	12.05.12	36	L	Spontaneous	-	Vaginal	Yes	-	8	8	2.3	NO	-	-	-	(-ve)
87	Usha	19/6032	02.11.11	09.08.11	37	L	LSCS	-	LSCS	-	-	8	8	2.5	NO	-	-	-	POSITIVE
88	Magheswari	22/6058	01.12.11	08.09.12	39	L	Induction	-	Vaginal	-	-	8	8	3.3	NO	-	-	-	(-ve)

89	Aarathi	20/6055	08.12.11	15.09.12	37	L	Spontaneous	-	Vaginal	-	-	8	8	2.4	NO	-	-	-	(-ve)
90	Maegala	20/5994	20.01.12	27.10.12	38	M	Spontaneous	-	LSCS	-	-	8	8	2.9	NO	-	-	-	(-ve)
91	saguntalai	21/6043	08.10.11	15.07.12	38	L	Spontaneous	-	Vaginal	-	-	8	8	2.4	NO	-	-	-	(-ve)
92	sumathi	21/6048	26.09.11	02.06.12	38	L	Spontaneous	-	Vaginal	-	-	7	7	2.9	NO	-	-	-	(-ve)
93	Subbashini	22/6052	18.02.11	25.11.12	39	M	Spontaneous	-	LSCS	-	-	8	9	3.1	NO	-	-	-	(-ve)
94	Valli	22/6079	13.12.11	20.09.12	38	M	Induction	-	Vaginal	-	-	8	9	2.9	NO	-	-	-	(-ve)
95	Rihana	19/6131	04.01.12	11.10.12	38	L	Spontaneous	-	Vaginal	-	-	9	9	3	NO	-	-	-	(-ve)
96	VasanthaPriya	21/6179	11.02.12	18.11.12	36	L	Spontaneous	-	Vaginal	Yes	-	9	9	2.3	NO	-	-	-	(-ve)
97	Sumathi	20/6139	01.11.11	08.08.12	37	L	Spontaneous	-	Vaginal	-	-	8	8	2.8	NO	-	-	-	(-ve)
98	Kasthoori	20/6144	17.12.11	24.09.12	36	L	Spontaneous	-	Vaginal	-	-	8	8	2.3	NO	-	-	-	(-ve)
99	Radhika	22/6086	06.02.11	13.11.12	38	M	Spontaneous	-	Vaginal	-	-	8	9	2.8	NO	-	-	-	(-ve)
100	Annapoorni	20/6134	26.03.12	03.12.12	38	L	Induction	-	LSCS	-	-	9	9	3.4	NO	-	-	-	(-ve)
101	Bhavani	21/6050	20.02.11	27.09.12	37	L	Spontaneous	-	Vaginal	-	-	8	8	2.3	NO	-	-	-	(-ve)
102	Imalatha	22/6126	28.03.11	05.12.12	38	L	Spontaneous	-	Vaginal	-	-	8	8	2.7	NO	-	-	-	(-ve)
103	Surya Kala	27/6178	24.09.11	31.08.12	38	L	Induction	-	LSCS	-	-	8	8	2.5	NO	-	-	-	POSITIVE
104	Eswari	25/6191	05.01.12	12.10.12	37	M	Induction	yes	LSCS	-	-	8	8	2.5	NO	-	-	-	POSITIVE
105	Muniamma	22/6210	15.11.11	22.08.12	37	M	Spontaneous	-	Vaginal	-	-	9	9	2.4	NO	-	-	-	(-ve)
106	Savitha	25/6206	06.12.11	13.09.12	38	M	Spontaneous	-	Vaginal	-	-	9	9	2.7	NO	-	-	-	(-ve)
107	Suganya	20/6249	11.12.11	18.09.12	38	L	Spontaneous	-	LSCS	-	-	8	8	3.3	NO	-	-	-	(-ve)
108	Sasikala	22/6227	20.12.11	27.09.12	38	L	Spontaneous	-	Vaginal	-	-	9	9	2.6	NO	-	-	-	(-ve)
109	Nagalakshmi	25/6250	08.10.11	15.07.12	38	M	Spontaneous	-	Vaginal	-	-	8	8	2.8	NO	-	-	-	(-ve)
110	Saranya	19/6247	16.11.11	23.08.12	39	M	Spontaneous	-	LSCS	-	-	8	8	3.4	NO	-	-	-	(-ve)
111	Nadhiya	23/6218	12.01.12	19.10.12	37	L	Spontaneous	-	Vaginal	-	-	7	7	2.3	NO	-	-	-	(-ve)
112	Padma	23/6257	24.03.12	01.12.12	38	L	Induction	-	Vaginal	-	-	8	8	2.6	NO	-	-	-	(-ve)
113	Pavithra	30/6262	06.09.11	13.08.12	38	L	Spontaneous	-	Vaginal	-	-	8	8	2.8	NO	-	-	-	(-ve)
114	Aadhilakshmi	22/6245	20.02.11	27.11.12	36	L	Spontaneous	-	Vaginal	Yes	-	8	8	2.6	NO	-	-	-	(-ve)
115	Kalpana	21/6254	12.12.11	19.09.12	37	M	Spontaneous	-	Vaginal	-	-	8	8	2.2	YES LBW	LBW	-	-	(-ve)
116	Jayachitra	29/6303	05.11.11	12.08.12	38	L	Spontaneous	-	LSCS	-	-	8	8	3.5	NO	-	-	-	(-ve)
117	Kumudha	19/6348	04.02.11	11.11.12	38	L	Spontaneous	-	Vaginal	-	-	4	7	2.8	NO	-	-	-	(-ve)
118	Yamuna	18/6503	26.09.11	02.06.12	37	L	Spontaneous	-	Vaginal	-	-	8	8	2.6	NO	-	-	-	(-ve)
119	Kavitha	22/6487	21.11.11	28.08.12	39	L	Spontaneous	-	Vaginal	-	-	8	9	3.4	NO	-	-	-	(-ve)
120	Devi	21/6493	15.01.12	22.10.12	38	M	Spontaneous	-	Vaginal	-	-	9	9	2.7	NO	-	-	-	(-ve)
121	Lakhsmi	24/6507	17.11.11	24.08.12	38	M	Induction	-	Vaginal	-	-	9	9	2.4	NO	-	-	-	(-ve)
122	Kanchana	26/6525	18.12.11	25.09.12	36	LOWER	Spontaneous	-	Vaginal	Yes	-	8	8	2.3	NO	-	-	-	(-ve)
123	Arulmozhi	23/6527	10.01.12	17.10.12	38	LOWER	Spontaneous	-	LSCS	-	-	8	9	2.8	NO	-	-	-	(-ve)
124	Saranya	23/6529	14.11.11	21.08.12	39	LOWER	Spontaneous	-	Vaginal	-	-	7	7	3.2	NO	-	-	-	(-ve)
125	Rabecca	25/6532	15.01.12	22.10.12	38	MIDDLE	Induction	-	Vaginal	-	-	9	9	2.7	NO	-	-	-	(-ve)
126	Sumathi	31/6573	04.12.11	11.09.12	39	LOWER	Spontaneous	-	Vaginal	-	-	9	9	3.12	NO	-	-	-	(-ve)
127	Jaya	21/6231	23.02.11	30.11.12	38	LOWER	Spontaneous	-	LSCS	-	-	8	8	2.8	NO	-	-	-	(-ve)
128	Ammu	19/6586	06.12.11	13.09.12	37	MIDDLE	Spontaneous	-	Vaginal	-	-	8	9	2.2	NO	-	-	-	(-ve)
129	Kavitha	21/6586	14.01.12	21.10.12	38	MIDDLE	Induction	-	Vaginal	-	-	8	9	2.9	NO	-	-	-	(-ve)
130	Kamala	23/6579	08.10.11	15.07.12	38	L	Spontaneous	-	Vaginal	-	-	8	9	2.8	NO	-	-	-	(-ve)
131	Poongodi	26/6538	11.01.12	18.10.12	39	L	Spontaneous	-	Vaginal	-	-	9	9	3.2	YES FETELDISTRESS	FETAL DISTRESS	-	-	(-ve)
132	Manimala	23/6616	11.11.11	18.08.12	38	M	Spontaneous	-	Vaginal	-	-	9	9	2.7	NO	-	-	-	(-ve)
133	Parimala	24/6611	18.01.12	25.10.12	39	L	Spontaneous	-	INSTRUIMENTAL	-	-	9	9	3.15	NO	-	-	-	(-ve)
134	Yasmin	22/6639	23.11.11	30.08.12	38	L	Induction	-	Vaginal	-	-	8	8	2.4	NO	-	-	-	(-ve)

135	Mithra	23/6277	06.02.11	13.11.12	36	L	Spontaneous	-	Vaginal	Yes	-	8	9	2.4	NO	-	-	-	(-ve)
136	Subhashini	29/6643	02.02.11	09.11.12	37	L	Spontaneous	-	Vaginal	-	-	8	9	2.7	NO	-	-	-	(-ve)
137	Vanitha	22/6434	26.03.12	03.12.12	37	M	Spontaneous	-	Vaginal	-	-	9	9	2.8	NO	-	-	-	(-ve)
138	Thangamani	26/6645	28.03.12	05.12.12	37	M	Spontaneous	-	Vaginal	-	-	9	9	2.8	NO	-	-	-	(-ve)
139	Tamilarasi	24/6640	30.03.12	07.12.12	38	M	Spontaneous	yes	LSCS	-	-	8	9	3	NO	-	-	-	(-ve)
140	Uma Maheswari	23/6607	22.01.12	29.10.12	37	L	Spontaneous	-	Vaginal	-	-	8	8	2.5	NO	-	-	-	(-ve)
141	Bhuvaneshwai	23/6153	18.11.11	25.08.12	37	L	Spontaneous	-	LSCS	-	YES	8	9	2.8	NO	-	-	-	(-ve)
142	Jimmaalati	22/6126	09.01.12	16.10.12	37	L	Spontaneous	-	Vaginal	-	-	8	8	2.6	NO	-	-	-	(-ve)
143	Surya Kala	21/6178	26.09.11	22.06.12	38	L	Spontaneous	-	Vaginal	-	-	8	8	2.6	NO	-	-	-	(-ve)
144	Chitra	22/6180	12.02.11	19.11.12	39	L	Induction	-	LSCS	-	-	8	9	3.6	NO	-	-	-	(-ve)
145	Divya	21/6688	11.02.11	18.11.12	36	M	Spontaneous	-	Vaginal	-	-	8	8	2.2	NO	-	-	-	(-ve)
146	Naseema	27/6083	22.02.11	27.11.12	37	M	Spontaneous	-	Vaginal	-	-	8	9	2.8	NO	-	-	-	(-ve)
147	Kalpana	21/6218	15.12.11	22.09.12	38	M	Spontaneous	yes	INSTRUIMENTAL	-	-	4	7	2.7	YES FETAL DISTRES	FETAL DISTRESS	YES MAS		(-ve)
148	Saranya	21/6694	01.02.11	08.09.12	39	L	LSCS	-	LSCS	-	-	8	9	3.4	NO	-	-	-	(-ve)
149	Sudhalakshmi	25/6694	24.09.11	31.08.12	37	L	Spontaneous	-	Vaginal	-	-	8	9	2.1	NO	-	-	-	(-ve)
150	Bharathi	22/6596	08.02.11	15.11.12	37	L	Spontaneous	-	Vaginal	-	-	9	9	2.6	NO	-	-	-	(-ve)
151	Devi	21/6726	10.11.11	17.08.12	38	M	Spontaneous	-	LSCS	Yes	-	8	8	3.3	NO	-	-	-	(-ve)
152	Shajitha Banu	18/6734	16.02.11	23.11.12	37	M	Spontaneous	-	Vaginal	-	-	8	8	2.2	NO	-	-	-	(-ve)
153	Ishwarya	19/6729	19.02.11	16.09.12	38	L	Spontaneous	-	Vaginal	-	-	8	8	2.8	NO	-	-	-	(-ve)
154	Bhavani	23/6632	01.01.12	08.10.12	37	L	Spontaneous	-	Vaginal	-	-	6	7	2.4	NO	-	-	-	(-ve)
155	Ponmani	26/6799	23.01.12	30.10.12	38	L	Induction	-	Vaginal	-	-	9	9	2.7	NO	-	-	-	(-ve)
156	Pushpa	23/6518	23.02.11	30.11.12	39	L	Spontaneous	-	LSCS	-	-	9	9	3.5	NO	-	-	-	(-ve)
157	Amsaveni	23/6785	20.12.11	27.09.12	37	L	Spontaneous	-	Vaginal	-	-	8	8	2.8	NO	-	-	-	(-ve)
158	Kumudha	23/6820	06.02.11	13.11.12	37	L	Spontaneous	-	Vaginal	-	-	8	8	2.5	NO	-	-	-	(-ve)
159	Kavitha	19/4669	04.01.12	11.10.12	36	L	Spontaneous	-	Vaginal	Yes	-	8	8	2.5	NO	-	-	-	(-ve)
160	Rubinishi	24/4719	14.12.11	21.09.12	37	L	Spontaneous	-	Vaginal	-	-	8	8	2.9	NO	-	-	-	(-ve)
161	Bhawani	20/4713	08.01.12	15.10.12	37	M	Spontaneous	-	Vaginal	-	-	4	7	2.4	NO	-	-	-	(-ve)
162	Chitra	26/4704	06.02.11	13.11.12	38	M	Spontaneous	-	Vaginal	-	-	8	8	2.9	NO	-	-	-	(-ve)
163	Anitha	25/4729	15.01.12	22.10.12	39	M	Induction	-	Vaginal	-	-	8	9	2.5	NO	-	-	-	(-ve)
164	Ranga	19/4803	07.11.11	14.08.12	39	M	Spontaneous	-	Vaginal	-	-	9	9	2.8	NO	-	-	-	(-ve)
165	Punidha	21/4742	06.09.11	13.08.12	40	M	Spontaneous	yes	LSCS	-	-	8	9	3.6	YES	MOTHER DIABETIC	-	-	(-ve)
166	Padma Priya	23/4809	03.02.11	10.11.12	38	L	Spontaneous	-	Vaginal	-	-	8	8	2.6	NO	-	-	-	(-ve)
167	Lavanya	20/4789	21.01.12	28.10.12	37	L	Spontaneous	-	Vaginal	-	-	8	9	2.5	NO	-	-	-	(-ve)
168	Vanitha	22/4808	04.12.11	11.09.12	39	M	Spontaneous	-	LSCS	-	-	9	9	3.8	NO	-	-	-	(-ve)
169	Alamelu	19/4834	01.11.11	08.08.12	38	L	Induction	-	Vaginal	-	-	9	9	2.7	NO	-	-	-	(-ve)
170	Radhi	23/4827	28.03.12	05.12.12	37	L	Spontaneous	-	Vaginal	-	-	8	9	2.5	NO	-	-	-	(-ve)
171	Roopadevi	23/4278	09.11.11	16.08.12	38	M	Spontaneous	-	Vaginal	Yes	-	8	8	2.8	NO	-	-	-	(-ve)
172	Bhavani	19/4825	12.12.11	19.09.12	39	L	Spontaneous	-	LSCS	-	-	9	9	3.4	NO	-	-	-	(-ve)
173	Amulu	21/4828	07.02.11	14.11.12	38	L	Induction	-	Vaginal	-	-	9	9	2.7	NO	-	-	-	(-ve)
174	Aathi	20/4821	11.11.11	18.08.12	37	M	Spontaneous	-	Vaginal	-	-	8	8	2.4	NO	-	-	-	(-ve)
175	Radha	21/4837	20.11.11	27.08.12	37	M	Spontaneous	-	Vaginal	-	YES	9	9	2.5	NO	-	-	-	(-ve)
176	Anitha	20/4830	10.02.11	17.11.12	40	L	Induction	-	LSCS	-	-	8	8	3.2	NO	-	-	-	(-ve)
177	Radha	21/4850	02.11.11	09.08.12	37	L	Spontaneous	-	Vaginal	-	-	8	8	2.4	NO	-	-	-	(-ve)
178	Rajasudha	20/4632	16.01.12	23.10.12	38	M	Spontaneous	-	Vaginal	-	-	8	9	2.6	NO	-	-	-	(-ve)
179	Sharmila	19/4805	06.12.11	13.09.12	38	M	Induction	-	LSCS	-	-	8	9	3.2	yes fetal distress	FETAL DISTRESS	-	-	(-ve)

180	Vasuki	20/4795	05.11.11	12.08.12	37	L	Spontaneous	-	Vaginal	-	-	8	8	2.8	NO	-	-	-	(-ve)
181	Sangeetha	23/4801	21.01.12	28.10.12	37	L	Spontaneous	-	Vaginal	-	-	8	8	2.7	NO	-	-	-	(-ve)
182	Ponmani	19/4838	28.03.12	05.12.12	36	L	Spontaneous	-	Vaginal	-	-	4	7	2.4	NO	-	-	-	(-ve)
183	Amala	22/4683	15.02.11	22.11.12	38	L	Spontaneous	-	Vaginal	-	-	8	8	2.9	NO	-	-	-	(-ve)
184	Deepa	21/4746	08.10.11	15.07.12	38	L	Spontaneous	-	Vaginal	-	-	8	8	2.7	NO	-	-	-	(-ve)
185	Gowri	25/4637	20.11.11	27.08.12	38	M	Induction	-	Vaginal	-	-	8	8	2.5	NO	-	-	-	(-ve)
186	Priyadharshini	19/4871	22.01.12	29.10.12	39	L	Spontaneous	yes	LSCS	-	-	9	9	3.6	yes mother hypothgal	hypothigal	-	-	(-ve)
187	Dhivya	21/4869	09.01.12	10.10.12	37	M	Spontaneous	-	Vaginal	-	-	8	8	2.6	NO	-	-	-	(-ve)
188	Sangeetha	20/4877	07.12.11	14.09.12	37	M	Spontaneous	-	Vaginal	-	-	8	8	2.5	NO	-	-	-	(-ve)
189	Sheela	26/4842	01.03.12	08.12.12	38	L	Spontaneous	-	Vaginal	-	-	8	8	2.6	NO	-	-	-	(-ve)
190	Rajinamary	25/4867	19.02.11	26.11.12	37	L	Spontaneous	-	Vaginal	-	-	8	8	2.4	NO	-	-	-	(-ve)
191	Geetha	20/4390	04.09.11	11.08.12	37	L	Spontaneous	-	Vaginal	-	-	9	9	2.8	NO	-	-	-	(-ve)
192	Rajashree	26/4843	11.01.12	18.10.12	37	M	Induction	-	Vaginal	-	-	9	9	2.4	NO	-	-	-	(-ve)
193	Desamma	28/4881	05.02.11	12.11.12	37	M	Spontaneous	-	Vaginal	-	YES	8	8	2.6	NO	-	-	-	(-ve)
194	Devi	19/4860	23.11.11	30.08.12	38	M	Spontaneous	-	Vaginal	-	-	8	8	2.8	NO	-	-	-	(-ve)
195	Mageshwari	23/4639	20.12.11	27.09.12	37	L	Induction	-	Vaginal	-	-	8	8	2.7	NO	-	-	-	(-ve)
196	mNehrija	26/1887	12.01.12	19.10.12	37	L	Spontaneous	-	Vaginal	-	-	8	9	2.6	NO	-	-	-	(-ve)
197	Revathy	20/4815	17.01.12	24.10.12	37	M	Spontaneous	-	Vaginal	-	-	4	4	2.5	NO	-	-	-	(-ve)
198	Hemavathy	21/4675	21.11.11	28.08.12	38	L	Spontaneous	-	Vaginal	-	-	9	9	2.8	NO	-	-	-	(-ve)
199	Thilagavathy	26/4897	21.01.12	28.10.12	37	L	LSCS	-	LSCS	-	-	9	9	2.6	NO	-	-	-	(-ve)
200	Selvi	20/4919	20.02.11	27.11.12	37	M	Spontaneous	-	Instrumental	-	-	8	8	2.7	NO	-	-	-	(-ve)
201	Kanchana	17/4928	01.02.11	08.11.12	38	L	Induction	-	Vaginal	-	-	8	8	2.8	NO	-	-	-	(-ve)
202	Shobana	19/4914	18.01.12	25.10.12	37	L	Spontaneous	-	Vaginal	Yes	-	8	8	2.5	NO	-	-	-	(-ve)
203	Indira Priyadharshini	24/4722	30.03.12	07.12.12	38	M	Spontaneous	-	Vaginal	-	-	8	8	2.9	NO	-	-	-	(-ve)
204	Kalpana	28/4872	16.02.11	23.11.12	37	M	Induction	-	Vaginal	-	-	4	7	2.6	NO	-	-	-	(-ve)
205	Kasthuribai	30/4923	03.02.11	10.11.12	38	L	Spontaneous	-	Vaginal	-	-	8	8	2.8	NO	-	-	-	(-ve)
206	Anandhavalu	36/4929	19.11.11	26.08.12	38	L	Spontaneous	-	Vaginal	-	-	8	8	2.9	NO	-	-	-	(-ve)
207	Anitha	27/4899	24.09.11	31.08.12	38	L	Spontaneous	-	Vaginal	-	-	9	9	2.7	NO	-	-	-	(-ve)
208	Radhika	21/4875	04.01.12	11.10.12	38	L	Spontaneous	yes	LSCS	-	-	8	8	2.9	NO	-	-	-	(-ve)
209	Kalpana	18/4920	06.02.11	13.11.12	38	L	Spontaneous	-	Vaginal	-	-	8	8	2.8	NO	-	-	-	(-ve)
210	Sudha	18/4894	15.01.12	22.10.12	36	M	Spontaneous	-	Vaginal	Yes	-	8	9	2.6	NO	-	-	-	(-ve)
211	Rastha	19/4933	25.03.12	02.12.12	38	M	Spontaneous	-	Vaginal	-	-	8	8	2.8	NO	-	-	-	(-ve)
212	Radhika	19/4907	04.09.11	11.08.12	37	M	Spontaneous	-	Vaginal	-	-	8	8	2.5	NO	-	-	-	(-ve)
213	Muthu Bhavani	23/4883	03.11.11	10.08.12	39	L	Spontaneous	-	Vaginal	-	-	8	8	2.9	NO	-	-	-	(-ve)
214	Devi	21/4892	24.09.11	31.08.12	39	M	Induction	-	LSCS	-	-	8	8	2.9	NO	-	-	-	(-ve)
215	Poogulazhi	23/4927	08.02.11	15.11.12	38	L	Spontaneous	-	Vaginal	-	-	9	9	2.8	YES	WEAK CRY	YES METABOLIC CAUSE	-	(-ve)
216	Nalini	30/4802	04.01.12	11.10.12	37	L	Spontaneous	-	Vaginal	-	-	9	9	2.6	NO	-	-	-	(-ve)
217	Nandhini	20/4945	29.03.12	06.12.12	37	M	Spontaneous	-	Vaginal	-	-	8	9	2.7	NO	-	-	-	(-ve)
218	Amala	18/4949	06.01.12	13.10.12	38	L	Spontaneous	-	Vaginal	-	YES	8	8	2.8	NO	-	-	-	(-ve)
219	Bhuvaneshwai	25/4935	12.11.11	19.08.12	37	L	Induction	-	Vaginal	-	-	8	8	2.6	NO	-	-	-	(-ve)
220	Shuba	25/4917	09.02.11	16.11.12	37	L	Spontaneous	-	Vaginal	-	-	9	9	2.5	NO	-	-	-	(-ve)
221	Jothi	29/4968	02.01.12	09.10.12	38	M	Induction	-	Vaginal	-	-	9	9	2.9	NO	-	-	-	(-ve)
222	Sheeba	25/4917	20.01.12	27.10.12	38	M	Spontaneous	-	Vaginal	-	-	8	8	2.8	NO	-	-	-	(-ve)
223	Saraswathy	29/4915	06.02.11	13.11.12	38	M	Spontaneous	yes	INSTURMENTAL	-	-	8	8	2.7	NO	-	-	-	(-ve)

224	Gomathi	19/4955	11.01.12	18.10.12	37	M	Spontaneous	-	Vaginal	-	-	9	9	2.6	NO	-	-	-	(-ve)
225	Uma	19/4944	06.09.11	13.08.12	37	L	Spontaneous	-	Vaginal	-	-	8	8	2.5	NO	-	-	-	(-ve)
226	Naseema	19/4591	19.01.12	26.10.12	38	L	Spontaneous	-	Vaginal	-	-	8	8	2.7	NO	-	-	-	(-ve)
227	Asthar	24/4983	21.11.11	28.08.12	38	L	Spontaneous	-	Vaginal	-	YES	9	8	2.8	NO	-	-	-	(-ve)
228	Sugapriya	20/4990	03.12.11	10.09.12	35	L	Spontaneous	-	Vaginal	Yes	YES	4	4	2.0	YES LBW	LBW	-	-	POSITIVE
229	Sathiya	20/4970	27.03.12	04.12.12	39	L	LSCS	-	LSCS	-	-	8	8	3.0	NO	-	-	-	(-ve)
230	Vanitha	24/4995	22.11.11	29.08.12	39	M	Induction	yes	Instrumental	-	-	8	8	3.0	NO	-	-	-	(-ve)
231	Pushpa	20/4918	13.02.11	20.11.12	37	M	Spontaneous	-	Vaginal	-	-	9	9	2.5	NO	-	-	-	(-ve)
232	Neelam	21/4904	08.10.11	15.07.12	38	L	Spontaneous	-	LSCS	-	-	8	8	2.8	NO	-	-	-	(-ve)
233	Kalaivani	19/5033	04.12.11	11.09.12	37	L	Spontaneous	-	Vaginal	-	-	8	8	2.6	NO	-	-	-	(-ve)
234	Kaveri	21/4826	03.01.12	10.10.12	38	L	Spontaneous	-	LSCS	-	-	4	7	2.8	NO	-	-	-	(-ve)
235	Sujatha	23/5020	17.11.11	24.08.12	37	M	Induction	-	Vaginal	-	-	8	8	2.5	NO	-	-	-	(-ve)
236	Rekha	18/5014	24.03.12	01.12.12	38	M	Spontaneous	-	Vaginal	-	-	8	9	2.8	YES? ANONALY	ANONALY	YES? ANONALY	-	(-ve)
237	Thulukanam	24/4261	02.12.11	09.09.12	37	M	Spontaneous	-	Vaginal	-	-	9	9	2.7	NO	-	-	-	(-ve)
238	Sumangali	19/4097	18.02.11	25.11.12	38	L	Spontaneous	-	Vaginal	-	-	8	8	2.6	NO	-	-	-	(-ve)
239	Saginbanu	24/5062	07.01.12	14.10.12	38	L	Spontaneous	-	Vaginal	-	-	8	9	2.8	NO	-	-	-	(-ve)
240	Shanthi	22/5053	21.02.11	28.11.12	37	M	Spontaneous	-	Vaginal	-	-	8	8	2.5	NO	-	-	-	(-ve)
241	Nadhiya	24/5058	01.03.12	08.12.12	39	L	Spontaneous	-	Vaginal	-	-	8	8	3.0	NO	-	-	-	(-ve)
242	Anitha	23/4128	13.09.11	20.08.12	38	L	Spontaneous	-	Vaginal	-	-	8	8	2.8	NO	-	-	-	(-ve)
243	Saranya	18/5003	30.03.12	07.12.12	37	L	Spontaneous	-	Vaginal	-	-	9	9	2.7	NO	-	-	-	(-ve)
244	Nagavalli	25/4898	04.09.11	11.08.12	37	L	Induction	-	LSCS	-	-	8	8	2.6	NO	-	-	-	(-ve)
245	Parveen	25/5071	11.12.11	18.09.12	38	L	Spontaneous	-	Vaginal	-	YES	9	9	2.8	NO	-	-	-	(-ve)
246	Malar	21/5069	23.12.11	30.09.12	38	L	Spontaneous	-	LSCS	-	-	9	9	2.8	NO	-	-	-	(-ve)
247	Sunitha	27/5021	28.03.12	05.12.12	37	M	Induction	-	Vaginal	-	-	8	8	2.7	NO	-	-	-	(-ve)
248	Yasodha	30/5070	08.11.11	15.08.12	37	L	Spontaneous	-	Instrumental	-	-	4	4	2.4	NO	-	-	-	(-ve)
249	Alamelu	20/4987	06.12.11	13.09.12	38	L	Induction	-	Vaginal	-	-	8	9	2.8	NO	-	-	-	(-ve)
250	Suganya	19/5049	26.03.12	03.12.12	39	M	Spontaneous	yes	LSCS	-	-	8	9	3.0	NO	-	-	-	(-ve)